Essays on corporate takeovers

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It was the start of an exciting, but also challenging couple of years in which I grew as a researcher, but also as a person. This thesis is the product of those years, and I would not have been able to complete it without the help of so many different people.

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Cara Vansteenkiste

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Introduction

Mergers and acquisitions (M&As) have a significant impact on the firm's operations and activities and are among the most important events in a firm's lifecycle. In the last 30 years, the global market for M&As amounted to a volume of more than $20 trillion, with some individual transaction values exceeding that of a small country's GDP: the 2016 deal between the German drug company Bayer and US-based Monsanto for example was valued at $66 billion, exceeding the 2015 GDP of Luxembourg ($57.8 billion). M&As enable firms to expand into new markets, realize cost synergies, or benefit from cross-country differences in rules and regulations. Despite these apparent benefits and the vast amounts of money and resources spent on takeovers, hundreds of academic studies have shown that shareholders earn zero or negative returns following a takeover announcement, with this effect being even more pronounced when considering the firm's operational performance.

This then begs the question: why do bidders persist in undertaking M&As while decades of research have shown that the ex-ante probability of a successful and profitable takeover is low? The complexity of the M&A process can pose challenges for even the most skilled and experienced acquirers. Existing studies explain the returns around M&As by taking a short-term view, or by concentrating on one or a few features of the firm, deal, management, board, or country. This however only provides a limited perspective on the complexity of the underlying process, given that short-run expectations regarding the deal's performance can deviate from long-run realizations. In the first chapter of this thesis, we therefore compile the evidence on M&A success or failure and identify what variables determine the success of a takeover in terms of long-run shareholder returns and firm performance.

Our study of the literature identifies a number of transaction characteristics that prove to be relatively consistent predictors of long-run performance. First, serial acquirers' performance declines deal by deal as the firm increases its acquisitiveness, with CEO overconfidence as the main driver of this underperformance. Second, performance- and equity-based compensation contracts can deter managers from making value-destroying

acquisitions through the negative effect on their own long-run wealth and by aligning managers' and shareholders' interests. Third, board members with multiple directorships are generally more reputable and have better monitoring and advisory skills, resulting in more value-generating M&As and better long-run performance. Also female executives and directors, and experienced target CEOs are associated with better deal performance. Fourth, related or focused acquisitions outperform unrelated or diversifying acquisitions, as acquirers in related deals are more likely to have the skills and resources required to successfully integrate the target firm. Finally, an important source of synergies are cross-country differences in corporate governance standards and investor protection, as M&As enable firms to transfer governance standards across countries.

Given the importance of cross-country differences in rules and regulations as a source of value creation in M&As, the second chapter of this thesis investigates how differences in creditor protection affect bond performance around cross-border deal announcements. We use a global sample of cross-border M&As by Eurobond-issuing firms to show that returns to bidder bondholders are highly sensitive to the strength and enforcement of creditor protection. The increase in global cooperation between jurisdictions in multinational insolvencies enables creditors to engage in insolvency arbitrage and start insolvency proceedings in the jurisdiction that suits their claims the most. Bondholders of bidding firms therefore respond more positively to deals that expose their firm to a jurisdiction with stronger creditor rights and more efficient claims enforcement through courts, as acquiring a target in a more creditor-friendly country increases the threat and implications of starting insolvency proceedings in the target's country. We find that these positive spillover effects are stronger for firms that are more likely to default, such as firms with higher asset risk, longer maturity bonds, and a higher likelihood of financial distress. This paper has been published in the *Journal of International Business Studies* (2017).

The third chapter investigates a second stakeholder group in a cross-border deal setting, namely the firm's employees. We use a global firm-level database on employee policies to investigate how an acquirer's investment in its employee relations affects the value creation process in domestic and cross-border M&As. Given the importance of employees for firms' operations, it is crucial for firms to know how employee relations relate to shareholders' reactions when acquiring a domestic or a foreign target. We show that

whereas an acquirer's investment in employee relations is positively related to shareholder value and firm performance when acquiring domestically, this effect is reversed when acquiring a foreign target. These results are mainly driven by the provision of monetary incentives such as a bonus plan or health insurance benefits, but the negative effect in cross-border deals is reduced in deals where the acquirer has acquisition experience in the target's country, or where the social security laws in the target's county are weaker. Overall, this paper shows that providing employee welfare in the form of generous benefits is not absolutely good or bad for value creation in M&As: a trade-off exists between value-enhancing incentive effects and the labor-related frictions that arise in cross-border deals.

The fourth and final chapter investigates how acquiring a minority stake in a target firm before committing to a majority stake affects the takeover process in terms of bid premiums, shareholder returns, and post-deal performance. Based on a global sample of M&A deals between 1990 and 2015, I find that two-stage acquisitions (which amounted to almost 20% of the global public M&A volume) are less affected by information asymmetries and that they mitigate pre-emptive overbidding by deterring rival firms from making competing offers. I confirm these results for a US sample, using the increase in trade secret protection across US states as an exogenous shock to target value uncertainty, and the reduction in import tariffs across industries as a shock to potential bidder competition. In addition, I find that two-stage deals are more likely to be completed, they are completed faster, targets are less likely to be divested, and they perform better in the long run. Overall, these results suggest that two-stage acquisitions can offer benefits to acquiring firms when information asymmetries increase or when potential bidder competition is high.

Contents

Chapter 1

What Goes Wrong in M&As?

with Luc Renneboog

Abstract – This paper provides an overview of the academic literature on the market for corporate control, and focuses specifically on firms' performance around and after a takeover. Hundreds of academic studies have shown that bidding firms' shareholders earn returns close to zero or even negative returns after a takeover, and the lack of significant positive returns becomes even more pronounced when considering the firm's long-run performance. Nevertheless, the aggregate M&A market amounts to several trillions USD on an annual basis. In this light, we wonder about factors leading to M&A success or failure and seek an answer to the question: What goes wrong in mergers and acquisitions? We also provide an overview of the methods and techniques used to analyse post-takeover performance, and identify that deal performance is affected by some key determinants such as CEO overconfidence, CEO compensation contracts, board independence and busyness, differences in governance standards, and target relatedness.

Keywords: Takeovers; Mergers and Acquisitions; Long-Run Performance; Corporate Governance
JEL Classification: G34

1. Introduction

Mergers and acquisitions (M&As) are among the most important events in a company's lifecycle and have a significant impact on the firm's operations and activities. M&As enable firms to grow faster than firms that rely on organic growth, penetrate new markets and cross-sell into a new customer base, expand their scope by acquiring a set of complementary products, buy a pipeline of R&D intensive products or patents, avoid upstream or downstream market foreclosure by suppliers, reduce taxes by means of new subsidiaries situated in tax-friendly countries, realize cost synergies by eliminating surplus facilities and overheads, reduce competition, improve access to capital, etc.

Despite the vast amounts of money and resources spent on takeovers, hundreds of academic studies have shown that the bidding firms' shareholders either lose out at takeovers or are expected to gain rather little on average. The abnormal returns at a takeover announcement are approximately zero and many deals perform worse over the long run. One reason for this anticipated poor bidder performance at announcement is the very high premiums paid to target firms. These average 25 to 35% above the target's pre-announcement market value and are even much higher in case of bidder competition or hostile takeovers (Betton, Eckbo, and Thorburn, 2008; Martynova and Renneboog, 2008a), suggesting that the target firm is able to extract the marginal dollar related to the expected synergies out of the pockets of the bidding firm.

When we study the share price evolution or operational performance of the merged firm over a longer time window (two to three years subsequent to the transaction), we equally find little evidence that bidders' shareholders receive a return on takeover deals (Andrade, Mitchell, and Stafford, 2001; Moeller, Schlingemann, and Stulz, 2004), as the anticipated synergies at the announcement of the deal are frequently overestimated (Jensen and Ruback, 1983; Agrawal, Jaffe, and Mandelker, 1992; Agrawal and Jaffe, 2000).

Considering the lack of value creation for the bidder, we wonder what goes wrong in takeovers? Why do bidders persist in undertaking M&As while decades of research show that the ex-ante probability of a successful and profitable takeover is low? The complexity of the M&A process can pose challenges for even the most skilled and experienced acquirers. A great number of studies have thus attempted to identify the variables that determine the success of a takeover in terms of shareholder returns and firm performance. These studies

usually explain the returns around M&As by concentrating on only one or a few features of the firm, deal, management, board, or country. While this improves our understanding of M&A performance, it only provides a limited perspective on the complexity of the underlying process. In this paper, we compile the evidence on M&A success or failure.

As an illustration of how a firm's characteristics and decision-making processes affect its takeover policy, we turn to Royal Ahold, a Dutch classic showcase which got everything wrong in terms of M&A strategy and internal and external governance. In the 1990s, Royal Ahold was an (at first sight) very successful food retailing company with a worldwide presence. Its downfall in 2003 and near bankruptcy serves as a caveat for the consequences of an ill-considered policy of serial acquisitions. Royal Ahold, referred to as "Europe's Enron", was led by narcissistic managers, had adopted questionable corporate governance mechanisms, committed accounting fraud, and adopted a problematic acquisition strategy. In 2003, Ahold's CEO and CFO were forced to resign after media coverage of repeated financial fraud consisting of the overstating of corporate profits by €1 billion, the signing of side letters to takeover agreements and joint ventures which were kept secret (also to the external auditors), and the inappropriate consolidation of joint ventures and partial acquisitions in the financial statements. Ahold's market value plunged to €3.3 billion, an almost 90% decline from a €30 billion high in 2001. The firm had acquired over 70 companies in 28 countries in less than a decade. So, what had gone wrong with one of the world's biggest food retailers?

Ahold's CEO, Cees van der Hoeven, can be considered as a textbook case of a CEO "superstar" (Malmendier and Tate, 2009) affected by *hubris, overconfidence, narcissism* (Aktas, de Bodt, Bollaert, and Roll, 2015), and prone to *empire-building* (Dixon, 2003): "He became addicted to his reputation as an infallible corporate titan".[1] At best, he was described as a strong and persuasive personality (Smit, 2004; De Jager, 1997), and the fact that he won several awards as best CEO and manager of the year further convinced him of his unique abilities (Aras and Crowther, 2010). In his first annual report, CEO Verhoeven formulated a corporate policy which explicitly focused on maximizing the returns to shareholders. This would be achieved through a growth strategy which consisted of a

[1] The Economist, February 27th 2003, http://www.economist.com/node/1610552.

doubling of profits every 5 years and a 15% annual growth in earnings per share, 5% of which was to come from acquisitions and 10% from internal growth (de Jong et al., 2007). This was a questionable strategy: accounting performance objectives such as growth in earnings do not necessarily imply value creation, especially when growth is bought through an aggressive acquisition strategy. Following the initially successful growth via acquisitions, Ahold's high equity value enabled it to acquire firms more easily by making all-equity offers. This gave management more discretion to make acquisitions that valued growth over shareholder value. The firm's strategy gradually shifted and it increasingly focused on acquisitions instead of internal growth to meet its growth targets.[2] Ahold became a *serial acquirer*: fueled by the overconfidence of its CEO, it acquired 106 firms from 1989 to 2003, out of which 18 in the year 2000 alone (de Jong et al., 2007).

The market reactions to Ahold's takeover announcements gradually declined the more firms it acquired (Table 1). Although growth through acquisitions proved initially successful with stock markets reacting positively to its takeovers, Ahold shifted its takeover strategy towards sectors in which it had no experience and which had little *relatedness* to its original activities in order to maintain its growth path. For example, its entry into the American food production market through the takeover of US Foodservice was – unsurprisingly - perceived negatively by shareholders, as the firm had no experience in this sector and there was little overlap with its core activities.

A similar pattern appeared for the stock market reaction to the *financing* of the takeovers, which mainly consisted of equity issues and convertible bond issues. Stock price performance was an important reinforcing factor in Ahold's acquisition pattern: the higher the stock price, the smaller the seasoned equity issue for the equity offer to the target. Ahold's house bank, ABN Amro, played a significant role in maintaining high stock price performance through its analyst recommendations. These analysts were more optimistic than those of other banks and more frequently gave the advice to buy Ahold's shares. In the spirit of Jensen (2005), these high stock prices facilitated making the value-destroying acquisitions that (incorrectly) appeared beneficial to firm growth. It is surprising that

[2] Although the bonuses of the management team would be made dependent on the firm's EPS to avoid shareholder-management conflicts, these incentive compensation plans soon lost their purposes as the executives quickly sold off their shares obtained in the stock option plans.

analysts and investors were myopic to the consequences of Ahold's policies, although an explanation may be the overoptimism in the stock and M&A markets that grew substantially over the 1990s until March 2000.

Ahold not only expanded across product markets, but also across geographical markets. It was operating in 27 countries; it had operations not only in the Netherlands and in the US, but also in Brazil, Thailand, Guatemala, China, Sweden, and Spain. Still, the operating environment in Asia and Latin America differed substantially from Ahold's initial operations in the US and Europe, and attempts to resolve *cross-country cultural differences* and integrate target firms were unsuccessful and even led to a withdrawal from countries such as China and Singapore.

So, one wonders why none of the firm's large shareholders or the board step in when stock performance started deteriorating? Although Ahold was initially a family firm, the ownership of the family gradually diluted in order to finance the group's strong growth, such that *no major blockholder* was left to monitor management's decision making. After the kidnapping and murder of one of the family members, the company's control shifted from the family to a professional management team. The management (and CEO Cees van der Hoeven in particular) installed a battery of takeover defences in order to maintain its hold on the firm (de Jong et al, 2007). By 2000, Ahold's shares were held by dispersed shareholders and a few institutional investors, who strongly advised the CEO to slow down the acquisition rate as the firm had spent €19 billion on acquiring 74 companies in less than 10 years and, by now, its stock performance was quickly deteriorating. However, few shareholders held voting rights such that management's actions could not be constrained. Management had put a large part of the voting shares in a trust which issued the non-voting certificates that had been sold to 'shareholders', while the votes of the shares in the trust were controlled by management.

At the general annual meeting of 2001, Ahold changed its supervisory board nomination procedure: the supervisory board would make all nominations, and the voting threshold needed to reject nominations was substantially increased (a 2/3 majority was needed representing at least half of the voting rights). As a consequence, the supervisory board largely consisted of former managers who were loyal to the management and who

were often *overcommitted*.[3] The supervisory board was thus far from *independent*. The management board's composition was also questionable: all members were connected to Ahold's CEO Cees van der Hoeven, as they had reached their position through internal promotions in subsidiaries or staff functions. Little stood in the way of the empire-building and hubris-permeated CEO to obtain and maintain complete control of the management board, the supervisory board, and the company as a whole, resulting in a series of value-destroying acquisitions and the subsequent crash of Ahold in 2003.

Table 1: Ahold's Major Acquisitions (1991-2003)

This table shows Ahold's completed acquisitions with a deal value of €100 million or higher from 1991 until 2003. Announcement returns are calculated over the window [-1, 0] and are based on the market model. Source: de Jong et al., 2007.

Announcement Date	Target Firm	Target Country	Percentage Acquired	Deal Value (€ m)	Announcement Return (%)
28/02/1991	Tops Markets	US	100	332.67	3.29
22/02/1994	Red Food Stores	US	100	116.08	0.32
29/3/1996	Stop & Shop	US	100	2,307.82	2.56
15/11/1996	Supermercados Bompreço	Brazil	50	215.55	-0.68
15/01/1998	Disco	Argentina	50	339.64	1.19
20/05/1998	Giant Food	US	100	2,436.62	1.90
18/12/1998	Disco	Argentina	34	506.71	-1.60
10/12/1999	ICA	Norway/Sweden	50	1,800.00	-3.47
08/03/2000	US Food Service	US	100	3,776.04	-3.08
23/05/2000	Supermercados Bompreço	Brazil	50	240.18	-0.41
08/09/2000	Superdiplo	Spain	97.64	1,250.00	-7.11
06/12/2000	PYA/Monarch	US	100	1,843.49	-4.50
30/11/2001	Alliant Exchange	US	100	2,467.52	-0.22
12/12/2001	Bruno's Supermarkets	US	100	556.90	-2.50

In order to evaluate firms' performance around and after takeover announcements, it is crucial to determine how to properly measure firm performance. In sections 2 and 3, we

[3] For example, in 1987 (even before the change in procedure), the board included one member who owned 4 additional supervisory board positions and two members who held as much as 18 additional positions (de Jong et al., 2007). Ferris et al. (2003) report that for similar US firms, fewer than 0.5% of directors have more than four positions.

concentrate on methodologies and techniques used to calculate long-term share price reactions and operating performance following M&A transactions. We then review the literature on post-takeover performance in section 4, where the empirical evidence generally shows negative stock returns and operating performance. Occasionally, we show short-run announcement returns on the topics for which there is no or hardly any long-run research. In section 5, we discuss what drives long-term success and failure of takeovers; we concentrate on managerial quality (including the effect of hubris, overconfidence, and narcissism of top management), social ties and networks of CEOs and their incentives and compensation contracts, the structure of the (supervisory) board and the quality and busyness of its non-executive members, external governance by major shareholders (institutional investors, insiders, families, all of whom could have different investment horizons), the characteristics of the transaction (means of payment, sources of financing), historical financial performance of the parties involved (including targets' financial distress), product market relatedness, acquisitiveness of bidder and target (serial acquisitions and learning), the geographical distance between bidder and target, differences in corporate cultures, industry specificities, post-merger restructuring and divestitures, and country-specific variables which matter in cross-border acquisitions (differences in quality of the corporate governance regulation and rule of law, spillover effects in governance regulation, differences in the degree of investor protection, country cultural distance, corporate political orientation). As the M&A literature is vast, we predominantly confine ourselves to the finance literature, with exception of some topics on corporate culture which has been a focal area in the strategy literature. In section 6, we will identify the holes in the recent literature and lay out some ideas for future research; section 7 concludes.

2. Measuring long-run performance

The market for corporate control changes the corporate landscape: 91.4% of all publicly listed firms in the US engaged in at least one merger or acquisition in the 1990s and 2000s (Netter, Stegemoller, and Wintoki, 2011). In spite of the vast number of studies on M&As in the finance literature, the conclusions on takeover performance are often ambiguous. The research focus is usually on the short-run shareholder wealth effects from the viewpoint of

the target, bidder, or the combined firm, and less on the long-run as it is difficult to isolate the lasting impact of a takeover on the combined firm. Furthermore, the perspective on takeovers by a wide range of other stakeholders (often with diverging interests), such as bondholders, employees, consumers, suppliers, and the society at large, is only rarely taken.

Most of the M&A research has concentrated on the takeover announcement effect by using event studies that capture the anticipation of the takeovers' success or failure or, in other words, the discounted future cash flows generated by the takeover over and above a market benchmark. The resulting cumulative abnormal stock returns (CARs) are the deviations from the expected returns measured by basic asset pricing models such as the CAPM or the Fama-French-Carhart four-factor model. Long-run performance measures the ultimate success of a takeover as new information on the true synergy value and the integration processes become gradually available such that the market can correct its initially (possibly biased) short-term predicted returns. For instance, at the takeover announcement, the market may not accurately anticipate the resistance of employees or other stakeholders to the reorganization and integration process due to cultural differences (Capron and Guillen, 2009).

Long-run effects can be measured in various ways, but they share the concern that it is not straightforward to isolate the takeover effect from other effects influencing the firm over the years following the transaction. Long-run studies focus either on the stock price effects or on the changes in operating performance in the years following the deal. For the former approach, two choices can significantly affect the magnitude, significance, and even the sign of the estimated abnormal returns: first, as in short-run event studies, abnormal returns are usually defined as the excess returns over some benchmark return and the choice of the benchmark (e.g. the market model, the Fama-French Three/Five Factor model, or the Fama-French-Carhart four factor model) can yield different results. Second, a decision has to be made on the event-time techniques to calculate abnormal returns: CARs, buy-and-hold abnormal returns (BHARs), calendar time abnormal returns (CTARs), or calendar time portfolio regression returns (CTPRs). The expected benchmark returns in long-run event studies strongly depend on the asset pricing model employed and, as argued in Fama (1970), all tests of long-term abnormal performance are joint tests of market efficiency and a market equilibrium model. As the length of the event window increases, the model choice for

calculating expected returns becomes increasingly important. Long-term expected returns systematically suffer from imprecision as they can only be roughly estimated. Small errors in setting up a benchmark asset pricing model can result in large errors in the abnormal long-run returns, and therefore can have important consequences for the significance and magnitude of the results. For example, Andrade et al. (2001) argue that the expected returns over a three-year window range between 30% and 65% depending on the chosen model, such that it is difficult to know whether an abnormal return of 15% can be considered statistically significant.

The majority of takeover studies rely on either time-series or cross-sectional models. The former comprise e.g. the market model (MM), the capital asset pricing model (CAPM), and the Fama-French three factor model (FF3), possibly augmented with a momentum factor. While the parameters in these models are estimated out-of-sample and are usually assumed to remain stable over time, it is questionable whether this assumption is reasonable for event windows of up to three or even five years. Cross-sectional models, on the other hand, rely on a benchmark portfolio or matching portfolio, generally matched on industry, firm size, and market-to-book ratio. Although additional dimensions, such as the firm's past accounting performance, return volatility, stock illiquidity, or capital expenditure can be included in the matching process, capturing all relevant cross-sectional variation is not straightforward.

Once the expected returns are estimated, abnormal returns are calculated. As in short-run event studies, a simple and popular approach for measuring long-run abnormal returns following a takeover event is to calculate the CARs as the sum of the abnormal returns over a long event window starting at, prior to, or after the event (see equation (1) where N stands for the number of events, t_1 and t_2 are the respective start and end of the event window, R_{it} is the return of firm i on date t, and ER_{it} is the expected return resulting from an asset pricing model). Despite its simplicity, using CARs in a long-run analysis has encountered a lot of criticism.

$$(1) \quad CAR_i = \sum_{t=t1}^{t2} \frac{1}{N} [\sum_{i=1}^{N} (R_{it} - ER_{it})]$$

An alternative popular method is that of the buy-and-hold abnormal returns (BHARs). It differs from the CARs in that it aggregates the abnormal returns geometrically rather than arithmetically over the event period, and it allows for compounding whereas the CARs do not.

(2) $$BHAR_i = \prod_{t=t1}^{t2}(1 + R_{it}) - \prod_{t=t1}^{t2}(1 + ER_{it})$$

Both equations (1) and (2) suffer from methodological and statistical drawbacks in that they are subject to the bad model problem (Fama, 1998) and assume independence of individual firm abnormal returns. The first issue relates to the fact that all tests of long-term abnormal performance are joint tests of market efficiency and the validity of the asset pricing equilibrium model: even in non-event studies, α tends to be non-zero in a model of expected returns. This implies that none of the expected returns models are able to capture all of the systematic patterns in average returns, and this remains a largely unresolved problem in asset pricing. Barber and Lyon (1997) make a case in favour of BHARs: whereas CARs result in biased estimates of the actual investor returns, BHARs more accurately measure real investors' performance. When investing in assets, investors usually hold them for a specific time period rather than focus on earning abnormal returns day by day. Still, a concern with BHARs is that they can also be biased through the influence of new listings, rebalancing of benchmark portfolios, or the skewness of long-run returns. Lyon, Barber, and Tsai (1999) address this issue by introducing a bootstrapped skewness-adjusted t-statistic, building on the methods used in, amongst others, Ikenberry et al. (1995). In contrast, Fama (1998) favours the CARs over the BHARs because return compounding in BHARs brings about a stronger skewness in the abnormal returns distribution, and because compounding of returns results in standard errors that are amplified as the number of periods increases. With BHARs, standard errors thus increase at a faster rate at longer time windows relative to the average CAR standard error. Most of the early long-term event studies were almost exclusively based on BHARs, and both Mitchell and Stafford (2000) and Dutta and Jog (2009) conclude that no statistically significant returns are found once the biases in the BHAR methodology are corrected for.

What CARs and BHARs have in common is that they both use event time (number of days relative to the event at t_0). The second issue with these types of event studies concerns the assumption that the test statistics assume independently distributed abnormal returns across firms, whereas M&A events tend to be clustered through time and by industry and are hence not random. Consequently, samples in event studies are unlikely to consist of independent observations, leading to cross-correlation of abnormal returns and possibly overstated test statistics (Kolari and Pynnönen, 2010). Alternatively, one can use calendar time-based approaches such as calendar time abnormal returns (CTARs) or a calendar time portfolio regression returns (CTPRs). CTARs are average abnormal returns calculated each calendar month for all event firms over some expected return benchmark based on an asset pricing model or a matching portfolio. Many studies prefer a portfolio approach, given the issues with calculating expected returns based on asset pricing models (Fama's (1998) bad model problem). The portfolio variance accounts for the cross-sectional correlation of the firm's abnormal returns that occur in M&A studies and addresses the point that M&As are not random events and cluster over time by industry, resulting in cross-correlated abnormal returns and upwards biased test statistics. In the CTAR approach, the benchmark returns are allowed to change over time, and monthly CTARs are sometimes standardized by estimates of the portfolio's standard deviation to control for heteroskedasticity induced by the changing portfolio composition, and to add more weight to periods with more event activity. The measure of abnormal performance is the time-series mean of the monthly CTARs.

(3) $CTAR_t = R_{pt} - E(R_{pt})$, where R_{pt} is the monthly return on event firm portfolio p

CTPR is based on the intercept from a time-series regression of a series of portfolio returns on a benchmark set by an asset pricing model, where the portfolio firms have participated in an M&A event in the past *n* periods and this is repeated each period. The intercept from the regression measures the average monthly abnormal return on the event firm portfolio. In its simplest form (the market model), the model looks like this:

(4) $R_{pt} - R_{ft} = \boldsymbol{\alpha_p} + \beta_p(R_{mt} - R_{ft}) + \varepsilon_{pt}$, where R_{ft} is the riskfree rate at time t and α_p is the average monthly abnormal return on event firm portfolio p.

Fama (1998) argues that the monthly returns in the CTPR approach are less susceptible to the bad model problem, and Mitchell and Stafford (2000) confirm that it is less sensitive to misspecification than the CTAR calculation. However, the downside of CTPR is that the number of firms in the portfolio may vary across time periods, and that when each time period is weighted equally, abnormal returns are harder to identify because periods of high and low activity could average out (Loughran and Ritter, 2000). Also, when one uses a factor model to estimate the expected returns, CTPR assumes that the factor loadings are constant over time, which is unlikely as the event portfolio composition changes every month and takeover events tend to be clustered through time and by industry. As a result, the return estimates of CTPR can still be biased.[4] Betton, Eckbo, and Thorburn (2008) compare the matched-firm CTAR technique to the CTPR approach in combination with a factor model. They report that the matched-firm technique identifies matched firms that have different factor loadings than the firms in the event sample and therefore also prefer the CTPR factor model approach which avoids this problem altogether.[5] A considerable number of studies that take into account the issues above still report significantly negative long-run abnormal returns.

3. Long-run operating performance

The anticipation of real economic gains cannot easily be distinguished from market mispricing when only examining stock market prices over the short run (Healy, Palepu, and Ruback, 1992). Accounting-based performance measures – such as ROA, cash flows, sales, employee growth, or operating margins[6] - can be a more direct metric of synergistic gains or losses, and represent the value-added by the acquisition (Fu, Lin, and Officer, 2013).

[4] Brav (2000) proposes an alternative Bayesian predictive methodology relaxing the assumption of independence. However, Mitchell and Stafford (2000) argue that this methodology does not completely solve the independence problem, and for this reason still favour the CTPR approach.
[5] Studies using a more complex set of benchmarks represent ambiguous results (see e.g. Franks et al. (1991)).
[6] Ravenscraft and Scherer (1987, 1989) use both earnings-based and cash flow-based measures of operating performance, and find that the difference in these measures accounts for the conflicting evidence that post-merger performance declines on the basis of earnings-based measures but increases for cash flow-based measures.

However, as with long-term stock returns, concerns may arise regarding the statistical properties and potential measurement errors in studies based on long-run post-takeover operating performance. The use of accounting data to measure post-merger performance suffers from inherent noisiness, as mergers often come with restatements, write-downs, or special depreciation or amortization, making it more difficult to isolate the effect of a merger event. Issues such as industry clustering of merger events or changes in accounting standards over time can likewise considerably affect the results. If the merger is a response to an industry shock, using the firm's pre-merger performance as a benchmark will not be sufficient. The pre-and post-merger performance will then need to be adjusted for industry performance. A popular approach first used by Healy, Palepu, and Ruback (1992) is to look at the intercept of a cross-sectional regression of the firm's post-merger industry-adjusted operating performance on its pre-merger performance.

$$(5) \qquad OP_{post,i} - \overline{OP}_{post,ind} = \alpha + \beta\left(OP_{pre,i} - \overline{OP}_{pre,ind}\right) + \varepsilon_i$$

Industry-adjusted benchmarks may however still be biased if common economy-wide shocks affect all deals at particular point in time, or if merging firms outperform industry-median firms in the pre-merger period (Martynova, Oosting, and Renneboog, 2007). Merging firms may be larger and thus more profitable than smaller firms (Fama and French, 1995), or they may engage in acquisitions in periods when their operating performance is higher than normal (Morck at al., 1990). Barber and Lyon (1996) and Loughran and Ritter (1997) thus conclude that long-run operating performance needs to be compared to control firms, matched on industry but also on pre-merger features such as performance and size. Harford (2005) argues in favour of expanding the traditional operating performance measures with analyst forecasts to mitigate problems with performance benchmarks, and more recently, Bessembinder and Zhang (2013) propose a regression model that controls for additional firm characteristics that explain the cross-sectional variation in stock returns, such as illiquidity, volatility, and market beta.

Alternative approaches for measuring post-merger performance regard total factor productivity (TFP) and market share evolution. TFP research enables an analysis at the

plant-level (often by means of the Longitudinal Research Database at the US Bureau of the Census). For example, McGuckin and Nguyen (1995) and Schoar (2000) discover that acquired plants improve their productivity, whereas the acquirer's existing plants suffer from productivity decreases, resulting in a net change for the acquiring firm that is close to zero. Ghosh (2004) examines market shares and unveils a large increase in the acquiring firm's market share three years after the acquisition, and a positive relation between market share evolution and the firm's long-run operating performance.

4. Empirical findings on short- and long-run stock returns and operating performance

4.1 Short-run returns

Short-run event studies have by far been the most popular approach to evaluate takeovers since the 1970s (Martynova and Renneboog, 2008a). Out of the 98 studies in our overview focusing on long-term performance, 86 also include an analysis of short-run wealth effects. Takeovers on average are expected to create value as reflected in the weighted average of the announcement returns of bidders and targets, but the bulk of the returns accrue to the target shareholders who hold most of the bargaining power in the takeover negotiations. Returns differ over time and across takeover waves: Eckbo (1983) and Eckbo and Langohr (1989) report 6% two-day CARs for US targets in the 1960s and 1970s, Martynova and Renneboog (2008a) report CARs that amount to at least 16% for the 1980s and 1990s, and Netter, Stegemoller, and Wintoki (2011) report target CARs around 24% for the 2000s. The announcement returns to the acquirer shareholders are either close to zero (some studies report small statistically significant gains, others report small losses) or indistinguishable from zero (Netter et al., 2011). Asquith (1983) and Eckbo (1983) report slightly positive announcement CARs during the 1960s and 1970s, but Morck et al. (1990) and Chang (1998) report slightly negative returns for the 1970s and 1980s. The combined (weighted) acquirer and target returns are significantly positive, but they remain small: combined returns are 1.5% in the 1970s and 2.6% in the 1980s (Andrade et al., 2001), 1.06% in the 1990s (Betton et al., 2008), and 1.69% in the 1990s and 2000s (Maksimovic, Phillips, and Prabhala, 2011). These numbers reflect that the bidding firms generate lower CARs and are on average considerably larger (by a factor of 4) than the target firms.

The empirical literature has identified a number of takeover bid characteristics, such as bid type, deal attitude, the target's public status, bidder and target size, and means of payment, that can partially explain return differences across M&A waves. Short-run returns to bidders and targets are generally higher in tender offers relative to friendly merger negotiations (Schwert, 1996; Franks and Harris, 1989; Loughran and Vijh, 1997; Bouwman, Fuller, and Nain, 2009, Eckbo, 2009). A common explanation is that tender offers signal a higher degree of confidence in the deal. As tender offers are often hostile in attitude (as the bidding firm bypasses the board and directly addresses an offer to the target shareholders), target returns in tender offers are generally much larger than those in friendly deals. This difference is even more outspoken for hostile deals, in which the target board rejects the offer, because the market expects that opposition to a bid will trigger upward bid price revisions (see Servaes (1991) for the US; Franks and Mayer (1996) for the UK). Although bidder returns are expected to reflect the opposite pattern (bidder shareholders may fear overbidding in hostile transactions that hence drives the acquirer's share price down) some argue that bidder returns and combined returns should also be higher and positive in hostile deals. This is because rational decision making by the bidder should imply that hostile offers are used when favourable outcomes are more likely (relative to privately negotiating with the target firm) (Schwert, 2000), but also because hostile bids could result in an upward revision of the stand-alone value of the bidder (Bhagat, Dong, and Hirshleifer, 2005). All-cash bids typically result in higher announcement returns for both the target and the acquirer than all-equity bids (Loughran and Vijh, 1997; Bhagat et al., 2005; Savor and Lu, 2009). The common argument here is that takeovers are to be financed with cash when the management believes the acquiring firm's stock is undervalued, and with stock in case of overvaluation. As such, the market adjusts the bidder's stock price based on the expected over- or under valuation. However, market timing by managers cannot fully explain the use of stock, as stock is used as frequent in the greatest value-reducing deals as in the most value-creating deals (Netter et al., 2011). Netter et al. (2011) also show that the clustering of M&As in waves is attenuated by the presence of smaller or privately held firms, which are generally excluded from M&A samples due to data constraints. Samples that do include small deals and private acquirers follow a smoother and less wavelike pattern than samples predominantly focused on large and public firms. Moreover, the authors confirm earlier evidence on announcement

return differences between deals involving public and private targets (e.g. Fuller et al., 2002, Conn et al., 2005, Capron and Shen, 2007) by showing that although acquirer announcement returns are typically negative in samples including large and public firms, they are significantly positive when considering small and private deals. This is likely because the cost of restructuring is much larger in publicly traded firms due to the size of the transaction, organizational inertia, stakeholder entrenchment, or regulatory constraints. Similarly, Schneider and Spalt (2017b) document that when considering public targets, low bidder returns are associated with small bidders and large targets, whereas this pattern reverses when considering privately held targets.

4.2 Long-run returns

When extending the time window to several years subsequent to the deal, the vast majority of studies report significantly negative returns accruing to acquirer shareholders. For surveys on the long-term post-acquisition performance literature, see Agrawal and Jaffe (2000), Andrade et al. (2001), King et al. (2004), Martynova and Renneboog (2008a), Dutta and Jog (2009), and Bessembinder and Zhang (2013). Agrawal and Jaffe (2000) conclude that there is strong evidence of long-term underperformance following a takeover event, but caution that the use of inadequate estimation techniques (up to the 1990s) make drawing robust conclusions from these studies rather difficult. Andrade et al. (2001) report generally negative abnormal returns, also to the combined firm, in the three to five year period following the deal's completion. King et al. (2004) find insignificant or negative long-run acquirer market and accounting returns, with returns already declining from 22 days after the deal's announcement onwards. They thus conclude that, at the very least, M&As do not increase the acquiring (or combined) firm's performance. A number of transaction characteristics seem to have some predictive power for long-run returns: the most important ones of which are the means of payment, deal attitude, and the public status of the target firm. While long-run studies concentrating on the deal's attitude (friendly vs hostile) yield mixed results (Franks et al., 1991; Cosh and Guest, 2001), the acquisition of publicly listed target firms is associated with higher long-run bidder returns relative to the purchase of privately owned target firms (Bradley and Sundaram, 2004; Croci, 2007). Cash-financed

deals earn significantly higher returns than equity-financed ones (Mitchell and Stafford, 2000; Loughran and Vijh, 1997; Savor and Lu, 2009; Fu, Lin, and Officer, 2013). This finding can be explained by signalling as equity-financing may signal the bidder's overvaluation (Myers and Majluf, 1984). However, Savor and Lu (2009) argue that bidders' long-term shareholders are still better off with a stock deal than they would have been without an M&A deal taking place, suggesting that stock deals are not necessarily bad for shareholders.

At least three theoretical explanations have been offered to explain negative long-term bidder abnormal returns. The most common argument is that the market only slowly adjusts to takeover news, such that the long-term return reflects the true acquisition value that had not been captured by the announcement returns. In other words, the initial expected synergies are overestimated, and the overestimation is only gradually undone. Second, the earnings-per-share (EPS) myopia hypothesis states that managers are more likely to overpay for an acquisition if this increases the EPS in the short run. If the market initially overvalues such transaction firms, a negative long-run post-acquisition stock correction will take place. However, Rau and Vermaelen (1998) find no evidence for this hypothesis and formulate an alternative explanation: performance extrapolation. This hypothesis states that both the acquiring firm's management and the market extrapolate past performance when valuing a new acquisition. The authors distinguish "value" firms, which have high book-to-market equity ratios and which tend to yield higher returns, than "glamour" firms with low book-to-market ratios. Glamour firms are initially overvalued which induces negative long-run post-acquisition returns: the abnormal returns three years after the merger are -17.3% for glamour acquirers (versus 7.6% for value acquirers). A last explanation suggests that the difference between short-term and long-term studies is due to the methodological issues that long-term event studies are subject to. If this explanation were to hold, M&As may not be value-destroying at all. Overall, the only robust predictors for long-run performance appear to be the means of payment and the target's public status. The literature therefore does not provide many consistent explanations for why M&A performance seems to decline in the long run. If other transaction characteristics do not have strong predictive value for long-term performance, then what does? Our goal is to examine the recent literature in order to investigate what firm or deal characteristics affect long-term returns to shareholders.

5. What leads to success or failure in M&As?

In spite of the extensive empirical evidence on the wealth effects of takeovers, it is not easy to answer the question as to whether takeovers are value-creating or value-destroying corporate events. It is also not straightforward to identify the drivers behind the short-run or long-run abnormal returns, as these returns may reflect the stand-alone value of the acquiring firm, but also the potential synergies resulting from the merger deal or possibly the overpayment by the bidding firm (Hietala, Kaplan, and Robinson, 2003).While the announcement returns to the combined firm are significantly positive, long-run studies provide conflicting evidence and hence cast doubt on the degree to which the anticipated gains are correct. Earlier research has identified that variables such as firm diversification, status of the target (public versus private), deal attitude (friendly versus hostile), means of payment (all cash, all equity, or mixed offer), and bid type (tender offer or negotiation) are positively correlated with announcement takeover returns, but King et al. (2004) argue in their literature overview that none of these transaction variables significantly predict post-acquisition performance[7] and hence emphasize the importance of ferreting for unidentified variables to explain the variance in post-acquisition performance. Therefore, we focus on the most recent studies and discuss newly identified variables which have been shown to affect long-run post-M&A performance.[8] If target shareholders can earn returns beyond the synergy value of the takeover, then some parties must be losing out. We consequently also attempt to identify factors that affect this redistribution of wealth in M&A deals. We discuss serial acquisitions and learning effects; CEOs' traits such as overconfidence and narcissism; CEOs' compensation contracts; top managers' and directors' networks and social ties; board composition; differences in corporate cultures between targets and bidders; countries' culture, values, and investor protection spillover effects; corporate types based on control rights concentration held by institutional investors, families, other corporations, governments; geographical distance between bidder and target; bidders' and targets'

[7] King et al. (2004) primarily look at the conglomerate discount, firm relatedness, method of payment, and acquisition experience.

[8] For other overviews of takeover variables discussed in finance, accounting, management and organizational literature, see amongst others Gomes, Angwin, Weber, and Tarba (2013), Haleblian et al. (2009) and Barkema and Schijven (2008).

industry- and product market-relatedness; political influence on acquisitions; sources of financing; target acquisitiveness; and differences in CSR policies between bidder and target.

5.1 Serial acquirers

A vast percentage of bidding firms are frequent or serial bidders. Klasa and Stegemoller (2007) show that takeovers that occur within a sequence (which they define as five or more acquisitions by a firm in more than 12 months, but with no more than 24 months in between any two deals) make up more than 25% of M&A activity in the 1980s and 1990s. Netter, Stegemoller, and Wintoki (2011) find that for the 1990s and 2000s, 75.5% of listed US firms frequently participated in M&As, with an average of eight deals per firm. Although definitions of a serial acquirer vary across studies, the consensus is that the performance of serially or frequently acquiring firms is on average declining from deal to deal both at the firm level (e.g., Fuller, Netter, and Stegemoller., 2002; Conn et al., 2004; Croci, 2005; Antoniou, Petmezas, and Zhao, 2007; Ahern, 2008; Ismail, 2008; Laamanen and Keil, 2008; Aktas, de Bodt and Roll, 2009) and at the CEO level (Billett and Qian, 2008; Aktas et al., 2011; Jaffe, Pedersen, and Voetmann, 2013), and this finding holds for both US and UK public companies.

Out of the 17 studies in Table 2 that examine serially or frequently acquiring firms, 15 report negative or declining short-run announcement CARs to acquirer shareholders: Fuller, Netter, and Stegemoller (2002), for example, report bidder returns of 2.74% for first bids, whereas the fifth and higher bids earn returns of 0.52%. Similarly, Ismail (2008) reports returns of 2.67% for a first bid, and -0.02% for tenth bids. Not only short-run returns decline, serial acquirers' long-run performance (defined as operating cash flow scaled by market value) also diminishes with each acquisition. In total, eight studies in our overview report negative or declining long-run abnormal stock returns or operating performance: Billett and Qian (2008) report 3-year buy-and-hold excess returns of 32% for first deals, whereas fourth deals only earn 9.86%, and Klasa and Stegemoller (2007) report 4-year changes in the operating income-to-sales ratio of 1.8% for first deals, and of -0.1% for subsequent deals.

Table 2: Serial Acquirers

This table shows recent studies on serial and frequent acquirers. *Legend:* SRS (Short-run stock returns), LRS (Long-run stock returns), LRO (Long-run operating performance); CARs (Cumulative Abnormal Returns), BHARs (Buy-and-Hold Returns), CTARs (Calendar Time Abnormal Returns), CTPRs (Calendar Time Portfolio Regression); S (Significant), NS (Not Significant). FF3 stands for the Fama-French models comprising 3 factors (market, size, and market to book); M/B (Market to Book).

Paper	Return type, event window	Sample size, country, and period	Performance measure	Effect	Results
Panel A: Serial acquirers					
Fuller et al. (2002)	SRS, [-2,+2]	3,135 completed deals, US public frequent acq., 1990-2000	CARs	Negative	First deals earn 2.74%, 5th and higher order deals earn 0.52%.
Antoniou et al. (2007)	SRS, [-2,+2]	1,401 completed acquisitions, UK public frequent acquirers, 1987-2004	CARs	Negative	First bids earn 1.66%, 5th and higher order deals earn NS returns.
	LRS, 3 years		CTARs controlled for size and B/M	Negative	
Laamanen and Keil (2008)	LRS, 3 years	5,518 acquisitions, public US acquirers, 1990-1999	BHARs	Negative	When the acquisition rate increases, returns decrease by 4.8%.
Ismail (2008)	SRS, [-2,+2]	16,221 deals, public US acquirers, 1985-2004	CARs	Negative	CARs: First deals earn 2.67% for first deals, second order deals earn 1.52%, 10th and higher order deals earn NS returns
	LRO, 3 years		ROA	Negative	
Panel B: Serial acquirers: Hubris and overconfidence					
Hayward and Hambrick (1997)	SRS, [-5,+5]	106 deals, large public acquirers and targets, 1989-1992	CARs.	NS	NS short-run CARs, long-run CARs decrease by 6.3% if hubris increases.
	LRS, one year			Negative	
Doukas and Petmezas (2007)	SRS,[-2,+2]	5,848 deals, public UK acquirers, private targets, 1980-2004	CARs	Negative	Overconfident/serial acquirers earn 0.79%, non-overconfident/single acquirers earn 1.34%.
	LRS, 3 years		CTPR using FF 3-factor model	Negative	Overconfident/serial acquirers earn -1.42%, non-overconfident/single acquirers earn -0.93%. First deals earn NS returns, 5th and higher order deals earn -1.72%.
Malmendier and Tate (2008)	SRS, [-1,+1]	3,911 deals, large public US acquirers, 1984-1994	CARs	Negative	Overconfident managers earn -0.90%, non-overconfident managers earn -0.12%.
Billet and Qian (2008)	SRS, [-1,+1]	3,795 completed deals, public US acquirers and targets, 1980-2002	CARs	Negative	First deals earn NS returns, subsequent deals earn -1.51%.
	LRS, 3 years		BHARs over size- and B/M portfolios	Negative	First deals earn 31.93%, fourth deals earn 9.86%.
Kose et al. (2011)	SRS, [-1,+1]	1,888 announced deals, public US acquirers and targets, 1993-2005	CARs	Negative	Overconfident acquirer and target managers earn 12% lower (relative to deals where neither or only one party is overconfident).
Aktas et al. (2014)	SRS, [-5,+5]	146 completed deals, public US acquirers and targets, 2002-2006	CARs	Negative	Returns decrease by 1.3% if target CEO narcissism increases by 10%.

Panel C: Serial acquirers: CEO or organizational learning					
Haleblian and Finkelstein (1999)	SRS, [-5,+5]	449 completed large acquisitions, public worldwide acquirers, 1980-1992	CARs	U-shaped	Acquisition experience decreases returns by 9.03%, acquisition experience squared increases returns by 0.47%.
	LRO, 3 years		ROA, ind.-adj.	U-shaped	
Conn et al. (2005)	SRS, [-1,+1]	2,914 completed deals (SR sample), 2,858 completed deals (LR sample), UK public acquirers, 1984-1998	CARs	Negative	Serial acquirers earn 0.37% lower returns.
	LRS and LRO, 3 years		LRS: CTARs, controlled for size and M/B. LRO: return on sales (ROS) ind.-adj.	Negative	Acquirer CTARs: first deals earn 1.05%, third and higher order deals earn -0.43%. Acquirer ROS: single acquirers earn 0.17%, serial acquirers earn 0.50%. First deals earn 3.53%, negative returns for later deals.
Croci and Petmezas (2009)	SRS, [-5,+5]	4,285 completed deals, US public frequent acquirers, 1990-2002	CARs	Negative	First deals earn 1.60%, 5th and higher order deals earn -0.41%, but difference is NS.
Aktas et al. (2011)	SRS, [-5,+5]	381 completed deals, public US acquirers and targets, 1992-2007	CARs	Negative	First deals earn -0.12%, subsequent deals earn -1.10%, but difference is NS.
Kengelbach et al. (2012)	SRS, [-3,+3]	20,975 deals, public worldwide acquirers, 1989-2010	CARs	Negative	First deals earn 1.4%, later deals earn NS returns. On average, serial acquirers earn 0.4% lower returns.
Jaffe et al. (2013)	SRS, [-1,+1]	3,820 completed deals, US public acquirers, 1981-2007	CARs	Negative	Returns are 0.69% (0.04%) if at least 2 deals at firm (CEO) level. Returns increase by 1.02% ($175m) in case of successful preceding deal and if CEO was retained.
Panel D: Serial acquirers: Diminishing attractiveness of opportunity set (best opportunities are taken first)					
Klasa and Stegemoller (2007)	LRS and LRO, one year	3,939 deals, 487 takeover sequences, US acquirers, 1982-1999	LRS: CARs and BHARs, controlled for size and B/M. LRO: ROS, ind.-adj.	Negative	Acquirer CARs/BHARs increase by 12% from year before first acquisition to year before middle acquisition, decrease by 15% after last acquisition. Acquirer ROS increases by 1.8% from y_{-1} to y_3 for first deal, decreases by 0.1% for last deal.
	LRS, 5 years		CARs and BHARs, controlled for size and B/M.	Negative	First deals earn insignificant returns, middle deals earn -27.8%, final deals earn -16.7%.

Overall, the evidence thus consistently shows that serial or frequent acquirers' short- and long-run stock and operating performance declines as the firm increases its acquisitiveness. In the next sections, we will discuss the three main explanations provided by the literature for the average underperformance of serial acquirers: CEO overconfidence and narcissism, bidding persistence by CEOs, and the diminishing attractiveness of the firm's opportunity set.

5.1.1 Hubris, overconfidence, and narcissism

Doukas and Petmezas (2007) and Malmendier and Tate (2008) argue that CEOs who engage in multiple acquisitions over a short time span could be regarded as *overconfident.* Their overconfidence hypothesis builds on the hubris hypothesis by Roll (1986) and the investment framework by Heaton (2002) and states that there is a misalignment in the beliefs of the CEO and of the market about the firm value. Serially acquiring managers are less likely to be efficient negotiators and may overestimate their ability to identify profitable target firms and to create synergy gains. It should be noted that this argument does not coincide with the agency costs or empire-building hypothesis developed by Jensen and Meckling (1976) because, from a hubris perspective, CEOs believe they act in the best interest of shareholders.[9] Malmendier and Tate (2008) confirm that (serial) acquisitions by overconfident CEOs – defined by the CEOs' timing of exercising vested stock options – do indeed generate lower announcement returns than deals by CEOs not liable to overconfidence. In addition, they find that announcement returns around serial acquisitions are also lower when the takeover announcement follows a confidence-boosting event for the CEO (such as a 'Manager of the Year' award), which gives the CEO a "superstar" status (Malmendier and Tate, 2009). Billet and Qian (2008) find evidence consistent with a self-attribution bias in CEOs that leads to overconfidence. They examine a sample of public US serial acquirers and find that the long-term buy-and-hold returns (BHARs) decline from deal to deal. This is confirmed for a sample of UK public acquirers by Doukas and Petmezas (2007) who demonstrate that higher order deals perform worse over the long-run than first order deals, although they use the CTPR approach rather than BHARs. Whereas the majority of the studies analysing CEO overconfidence in M&As only

[9] Maksimovic et al. (2011) investigate the empire building hypothesis for serial acquirers, and predict that repeat acquirers are less likely to sell plants after acquisitions and show fewer improvements in performance. They find no evidence for these predictions and find instead that disposition of assets is in fact more likely than retention for repeated acquirers.

investigate the effect of the acquirer CEO's overconfidence, Kose, Liu, and Taffler (2011) examine the relative overconfidence of the bidder and target CEOs. They find that if both decision makers are prone to overconfidence, the acquirer announcement returns are lower relative to deals where only one or neither party is identified as being overconfident. A trait related to overconfidence is narcissism, capturing characteristics such as egocentricity, the search of the spotlights, an overdeveloped sense of entitlement, or even contempt towards others. Aktas et al. (2014) proxy narcissism by measuring the use of the first person singular pronoun by the CEO relative to the use of first person plural pronoun by the top management team of the firm in meetings with analysts. Consistent with the research on overconfidence, they find that CEO narcissism is negatively related to merger announcement returns, positively to deal completion probability and negatively to the length of the takeover process.

5.1.2 CEO and organizational learning

In contrast to the studies in the previous subsection, Aktas, de Bodt, and Roll (2009) argue that attributing declining returns in serial acquisitions to growing hubris or overconfidence is hard to reconcile with the original hubris framework of Roll (1986). Their theoretical analysis proposes an alternative hypothesis based on *CEO learning*. This implies that acquirer CEOs improve their target selection and integration processing abilities gradually, from deal to deal, which affects their bidding behavior during subsequent takeover contests. In an empirical follow-up study, Aktas, de Bodt, and Roll (2011) find considerable persistence in the level of bidding (persistently high or low bids), and the market reactions to previous deals affect the persistence of the CEO's bidding behaviour: the better (worse) investors' reactions to previous announcements, the higher (lower) the bid premium of the subsequent deal. In other words, CEOs bid more aggressively following positive announcement market reactions and overbid in subsequent deals which decreases the announcement acquirer returns of later deals, but they overbid less for subsequent deals if previous market reactions were negative. Importantly, these predictions are in contrast with the general findings that overconfident CEOs experience a decline in performance from deal to deal.

A number of studies point out that it is important to study serial acquisitions at the CEO level rather than at the firm level, as a series of acquisitions by a specific firm is often undertaken by different CEOs. In line with Aktas et al. (2011), Croci and Petmezas

(2009) and Jaffe, Pedersen, and Voetmann (2013) document a positive persistence in announcement bidder returns for acquisitions studied at the CEO level. Deals by CEOs who were successful acquirers in the past trigger higher CARs than deals by CEOs with a less successful acquisition history, which implies that some CEOs have superior acquisition skills. Still, the authors fail to examine whether the documented short-term acquisition performance by CEOs also extends to the long run.

Previous studies suggest that successful acquiring firms/CEOs may travel a learning curve resulting in on average positive merger returns, whereas unsuccessful firms/CEOs may lack the specific abilities needed to achieve organizational learning gains. In contrast, Conn et al. (2005) do not document learning but argue that acquisition returns are subject to regression to the mean: acquirers with unsuccessful first acquisitions generate increasing short-run returns at subsequent acquisitions, whereas successful first acquirers incur declining returns (that nevertheless still stay somewhat higher than those of the unsuccessful first acquirers). Haleblian and Finkelstein (1999) relate organizational acquisition experience to long-run ROA performance and report a U-shaped relation between acquisition experience and performance. The best long-run performers are the bidders without any acquisition experience who can thus not (inappropriately) extrapolate their acquisition experience to subsequent deals, and the bidders with plenty of experience who can appropriately discriminate between good and bad targets. Acquirers with little experience however inappropriately generalize their early acquisition experience, resulting in a decline in performance. In addition, they find that experienced acquirers' long-term performance further increases the more similar a target is to prior targets. This conclusion is confirmed by Laamanen and Keil (2008) and Kengelbach et al. (2012). The former paper documents that bidder stock returns are on average negative in the long run, but the negative effects are alleviated the larger is the acquirer's experience, size, and scope of its acquisition program. The specialized-learning hypothesis in the latter paper states that acquisition experience leads to superior performance provided that the experience is applied to acquire similar target firms. The overall declining performance of serial acquirers is then attributed to the increasingly complex target integration processes and diversifying acquisitions.

5.1.3 Diminishing attractiveness of opportunity set

Serial acquisitions may reduce the firm's investment opportunity set, especially for within-industry deals. Klasa and Stegemoller (2007) report that takeover sequences begin after an expansion of the firm's opportunity set and end when the opportunity set closes off. They find that this gradual exhaustion of interesting takeover targets induces lower long-run stock and operating performance: one-year bidder abnormal returns are insignificant for the first acquisition and become significantly more negative with subsequent acquisitions by the acquirer. The five-year post-acquisition returns confirm this negative trend for later acquisitions. Moreover, the authors argue that these results are unlikely to be explained by overconfident managers making bad acquisitions, as this hypothesis is not related to the contraction in industry-level investment opportunities at the end of a takeover sequence. Taken together, the firm's growth opportunity set gradually closes off as the best opportunities are taken first.

5.2 CEO Incentives and Compensation

Although narcissistic or overconfident CEOs may be incentivized to undertake M&As by non-pecuniary awards in terms of prestige, reputation, and media attention, specific CEO compensation contracts may also stimulate takeover activity (even if it is value-destroying at the firm level). According to agency theory, management compensation contracts should reduce managerial opportunism by aligning managements' and shareholders' interests (Shleifer and Vishny, 1988). One way of achieving this is by linking management compensation contracts to firm performance through equity-based compensation. If equity-based compensation is high enough, this should deter managers to make poor acquisitions through the negative effect on their long-run wealth. Datta, Iskandar-Datta, and Raman (2001) find that a higher level of equity-based compensation is associated with positive long-run returns and that long-run post-acquisition stock return underperformance is primarily incurred by firms with low equity-based CEO compensation that underperform matched control firms by 23%, as their executives are less incentivised to increase firm value (Table 3).

Feito-Ruiz and Renneboog (2017) report that CEOs who receive high levels of equity-based compensation pay lower premiums for target firms and undertake more risky investments. The authors show that stock option-based compensation motivates

managers to take on projects that maximize shareholders' value (even in the absence of active ownership), which is recognized by bidders' shareholders who put a higher expected value on deals by CEOs with this type of compensation contract. This suggests that the shareholders have more faith in takeover decisions when the proceeds/losses will also be shared with the top management (through their equity claims when the options and restricted stock vest).[10] Considering CEO traits (such as age, and tenure or experience), firm attributes (such as size and financial performance), industry, country (e.g. the degree of investor protection), and the year of pay, the authors estimate normal or expected CEO pay from which they subtract actual pay to obtain 'excess' compensation. They demonstrate that excess compensation negatively affects the acquirer's stock valuation at a takeover announcement. Excess CEO remuneration can blur fair managerial corporate investment judgments and constitutes an agency problem.

In addition, providing performance-based compensation contracts may not be sufficient to discourage managers from undertaking value-destroying takeovers if the performance criteria leading to higher pay include a policy of firm growth through acquisitions (Bebchuk and Grinstein, 2005). Harford and Li (2007) indeed provide evidence that post-acquisition CEO wealth increases irrespective of whether the deal created or destroyed firm value. They find that even if post-acquisition firm value decreases, the resulting decreases in the CEO's existing wealth portfolio are often offset through new equity-based grants such as stocks or options, making the CEO's compensation indifferent to poor stock performance.

[10] Pikulina and Renneboog (2015) confirm these findings but point out that the relation between equity-based compensation and expected performance is eroded for firms in which there are major corporate blockholders. This is consistent with a substitute effect between the monitoring role of concentrated ownership (held by corporations) and the self-regulatory role of equity-based compensation.

Table 3: CEO Incentives and Compensation

This table shows the studies on CEO Incentives and Compensation. *Legend:* SRS (Short-run stock returns), LRS (Long-run stock returns), LRO (Long-run operating performance); CARs (Cumulative Abnormal Returns), BHARs (Buy-and-Hold Returns), CTARs (Calendar Time Abnormal Returns), CTPRs (Calendar Time Portfolio Regression Returns); S (Significant), NS (Not Significant), EBC (Equity-Based Compensation), M/B (Market to Book).

Paper	Return type, event window	Sample size, country, and period	Performance measure	Effect on perf.	Results
Datta et al. (2001)	SRS, [-1,0]	1,719 deals, US public acquirers, 1993-1998, only 1st acquisition in LR sample	CARs	Positive	High (low) equity-based compensation firms earn 0.30% (-0.25%).
	LRS, 3 years		Bootstrapped BHARs (controlled for size, B/M, and pre-acq. stock re.)	Positive	Low equity-based compensation firms earn 23% lower returns. High equity-based compensation firms do not underperform.
Lehn and Zhao (2006)	SRS, [-5,+20]	714 completed deals, public acquirers and targets, 1990-1998	CARs	Negative	Firms with CEO turnover earn -2.97%, retained CEOs earn -1.15%.
	LRS, 3 years		BHARs	Negative	Firms with CEO turnover earn -0.242, retained CEOs earn 0.006%
Harford and Li (2007)	SRS, [-1,+1]	370 completed deals, US public acquirers, 1993-2000	CARs	Negative	Acquiring CEO total wealth increases after merger (wage increases, wealth decreases).
	LRS, 3 years		BHARs, ind.-adj.	Negative	
Lin et al. (2011)	SRS, [-2,+2]	709 completed deals, public Canadian acquirers and targets, 2002-2008	CARs	Negative	Firms with CEOs without liability insurance earn 1.42% vs. 0.32% with insurance.
	LRO, 3 years		Ind-adj. ROA, controlled for size, M/B, deal attitude, ind. relatedness.	Negative	Acquirer ROA decreases by 2.9% for high liability insurance. Insignificant for low liability insurance.
Feito-Ruiz and Renneboog (2017)	SRS, [-2,+2]	216 deals, European public acq. and public and private global targets, 2002-2007	CARs	Positive	Expected performance (short-run CARs) are higher for bidders with high equity-based compensation. Excess CEO compensation reduces the expected value creation.

Even in the absence of equity-based compensation contracts, the possibility of being fired as a CEO or the likelihood of incurring other personal costs should be at least as strong an incentive to avoid making value-destroying acquisitions. Lehn and Zhao (2006) indeed report that CEOs that make value-destroying acquisitions are more likely to be replaced. However, they also find that announcement returns and long-term stock returns of firms that replace their CEOs after a bad acquisition are negative and much lower than those for firms that do not replace their CEOs. Investigating the effect of liability insurance coverage protecting CEOs against fines and other personal liabilities, Lin, Officer, and Zhou (2011) find that Canadian acquiring firms whose executives have more liability

insurance coverage have significantly worse post-takeover long-term ROA and asset turnover performance.

5.3 CEO and director connections and networks

Social and professional connections of board members and executives can affect the firm's decision-making processes, including decisions on mergers and acquisitions. These networks are established through professional activities, such as being on the same board of directors, or social connections such as education (graduated from the same university or college), common sports interests and club memberships.

The effect of well-connected directors/firms on M&A performance can be twofold: on the one hand, professional and social networks enable connected CEOs and directors to get easier and less costly access to information. This can improve their decision making, enhance trust between the parties involved (Fracassi, 2009; Wu, 2011), and facilitate the search for profitable targets (Renneboog and Zhao, 2014). Cai and Sevilir (2012) do indeed find evidence for a sample of US deals that long-run ROA increases for deals with a first-degree common director between target and acquirer (which is a direct link) relative to second-degree connected deals (based on indirect connections) and non-connected deals. For a sample of UK firms, Renneboog and Zhao (2014) find that deals between connected firms are more likely to be completed, that the negotiations are completed faster, and that these deals are more likely to be financed with equity, which reflects the trust between the parties. However, they find no significant announcement effect in the bidders' share prices. Chikh and Filbien (2011) focus on CEO's educational ties and find that well-connected CEOs are more likely to complete a deal even in the wake of negative market reactions, and that the merged firms achieve higher long-run stock returns than firms that abandoned negotiations. While the majority of studies consider only the effect of CEO and board connections on acquirer returns, Dhaliwal et al. (2014) focus on connections through common auditors and discover that deals involving parties with the same auditor transfer part of the negotiation power to the bidding firm, which is reflected in the higher returns for acquirer shareholders and lower returns for target shareholders.

Table 4: Professional Ties and Social Networks

This table exhibits studies on social ties and networks. *Legend:* SRS (Short-run stock returns), LRS (Long-run stock returns), LRO (Long-run operating performance); CARs (Cumulative Abnormal Returns), BHARs (Buy-and-Hold Returns), CTARs (Calendar Time Abnormal Returns), CTPRs (Calendar Time Portfolio Regression Returns); S (Significant), NS (Not Significant). FF3 stands for the Fama-French models comprising 3 factors (market, size, and market to book); M/B (Market to Book).

Paper	Return type, event window	Sample size, country, and period	Performance measure	Effect on performance	Results
Chikh and Filbien (2011)	SRS, [-3,+3]	200 deal announcements, French public acquirers, public targets, 2000-2005	Standardized CARs	Positive	-0.87% lower returns if CEO completes deal despite negative market reactions, 0.57% higher if he acts in line with market reactions.
	LRS		Monthly average abnormal returns based on FF3 model	Positive	
Wu (2011)	SRS, [-1,+1]	2,194 deal announcements, US public targets, 1991-2003	CARs	Negative	Interlocked deals earn -4%, non-interlocked bids earn -2.1%.
	LRO, 3 years		ROA	NS, except for firms with strong corp. governance	Insignificant change in ROA for interlocked bids, but higher if better governed acquirer. Increase in ROA for interlocked deals with less-transparent targets is 0.089 higher than for non-interlocked deals.
Cai and Sevilir (2012)	SRS, [-2,+2]	1,664 completed deals, public US acquirers and targets, 1996-2008	CARs	Positive	First-degree connected deals earn insignificant returns, non-connected deals earn -2.33%.
	LRO, 3 years		ROA, ind.-adj. and adj. for pre-merger ROA.	Positive	ROA is 0.015 for first-degree connected deals, 0.03 for second-degree, 0.004 for non-connected deals.
Rousseau and Stroup (2013)	SRS, [-1,+1]	809 deals, public (S&P500) US acquirers, 1996-2006	CARs	Negative	Currently interlocked deals earn 1.8% lower returns, historical connections do not affect returns.
Ishii and Xuan (2014)	SRS, [-3,+3]	539 deals, public US firms, 1999-2007	CARs	Negative	Well-connected firms earn -3.42%, non-connected firms earn -0.98%.
	LRO, 1 year, [-1y,+1y]		Ind.-adj. ROA, Tobin's Q, and nr. of employees.	Negative	Higher decrease in ROA and Tobin's Q for well-connected firms, but smaller reduction in number of employees.
Dhaliwal et al. (2014)	SRS, [-1,+1]	2,511 deals, public US acquirers and targets, 2002-2010	CARs	Positive	Bidder returns are 0.70% higher if target and acquirer share auditor, 1% if shared auditor office.
Renneboog and Zhao (2014)	SRS, [-1,+1], [-5,+5], and [-10,+10]	666 deal announcements, public UK acquirers and targets, 1995-2012	CARs	NS	A one-std. dev. increase in a firm's connectedness (through its board members) enhances probability of successful takeover bid by 20%. Connections shorten negotiation time and increase probability of equity as means of payment. Connections are not related to bidder returns.

In contrast to the view that directors' or firm connections have a positive impact on takeover performance though an enhanced information-gathering potential, Renneboog and Zhao (2014) argue that connections may also have a dark side in the sense that they may only reflect past performance and do not necessarily have any bearing on future corporate (takeover) performance. In that case, CEO or managerial connections may reflect managerial power or even hubris which may insulate them from being fired when the firm performs badly or when value-destroying acquisitions are made. Wu (2011) and Rousseau and Stroup (2013) report negative announcement effects (but insignificant long-run operating performance effects) in deals with interlocked board directors. Ishii and Xuan (2014) investigate educational and professional ties between executives and directors in acquiring and target firms, and find evidence supporting the inefficient retention of the target's management and board in well-connected firms. In addition, they find that mergers of two strongly connected firms are associated with a decrease in the post-acquisition ROA and that such transactions are more likely to be undone by means of divestitures following disappointing performance. Overall, worldwide evidence on the impact of professional connections and networks on takeover performance is mixed and often statistically insignificant, which implies that detrimental and beneficial effects of networks may offset one another. It thus remains an open question as to what conditions determine which of the beneficial or detrimental effects dominate.

5.4 Board characteristics

5.4.1 Board busyness and multiple directorships

The previous section has pointed out that professional and social networks may have negative effects on merger performance because firms may overly rely on their executive and non-executive directors' networks which they may see as a substitute for active information collection and because networks may reflect managers' past successes and performance which may not be easily replicable and even increase these managers' hubris (Renneboog and Zhao, 2011). Another drawback is that non-executive board members who are connected through multiple directorships could be too busy to fulfil their role of monitors and advisers effectively, while well-connected executive directors may not spend sufficient time managing their own company. Brown and Maloney (1999) do not agree as they find evidence that multiple directorships positively affect short-run

announcement returns; they also identify a number of board (member) characteristics that positively affect returns: firms perform better if they have smaller boards and if board members hold more equity. Still, Ferris et al. (2003) do not find evidence that non-executive and executive board members with multiple directorships shirk their responsibilities by not serving on the various board committees, although they do not directly relate this to M&A performance. In contrast, Ahn, Jiraporn, and Kim (2010) document that the long-term operating performance of firms with directors holding many outside board seats perform worse in the three years after deal completion. The little evidence on board busyness in an M&A context indicates that firms with board members holding multiple directorships encourages value-creating M&As and increase firm value provided that the number of outside directorships remains limited.

5.4.2 Board composition

Other studies have identified additional board characteristics (other than busyness or reputation) that may affect merger performance. Consistent with potential conflicts of interest between shareholders and creditors, Hilscher and Sisli-Ciamarra (2013) find that announcement returns and overall firm value around an acquisition are lower when a creditor is represented on the board, but the authors fail to examine the long-run performance effects. Huang and Kisgen (2013) examine the presence of female directors on the acquirer's corporate board. They use a difference-in-difference analysis to investigate the effect of the executive directors' gender on acquirer returns for a sample of large publicly listed firms in which male executives were replaced by female ones. They find that acquirer announcement returns are 2% higher for deals conducted by female executives relative to the ones led by male executives. Although the effects on long-run stock return and operating performance are insignificant, there is some evidence that male executives are more likely to go for empire-building and suffer from overconfidence, which results in more value-destroying acquisitions.[11] Levi, Li, and Zhang (2014) confirm this by showing that the presence of female directors on the acquirer's corporate board reduces the firm's acquisitiveness as female directors are less likely to overestimate merger gains. They find that independent female non-executive directors are associated

[11] This is consistent with experimental evidence that women are more risk-averse than men (Croson and Gneezy, 2009). Overall however, CEOs are significantly more optimistic and risk-tolerant than non-CEOs (Graham, Harvey, and Puri, 2013).

with offering lower bid premiums (and hence lower target returns), but this effect does not hold for dependent (executive or family-related) female directors. It is important to point out that the authors are not able to make any causal statements due to endogeneity between appointing female directors and firm performance.

Whereas the majority of studies only study the impact of characteristics of the acquirer's CEO or board on the takeover process, a few turn to target executives. Krishnan, Miller & Judge (1997) find that if the acquirer and target management teams are complementary, post-acquisition long-term operating performance are significantly higher. Moreover, they find that post-takeover performance deteriorates after the departure of the target firm's top management. If a target CEO is forced to depart or retire, he undergoes private merger costs in the form of forgone benefits of staying employed. Jenter and Lewellen (2015) argue that, if the CEO is close to retirement age, his private merger costs may be much lower making him more willing to accept takeover offers that might not be value-optimizing. However, they reveal that takeover premiums and target and bidder short-run returns are not significantly affected by the target CEO being close to retirement age. Field and Mkrtchyan (2017) report that not only directors' past acquisition experience affects short- and long-run deal performance, but also the quality of directors' prior acquisitions. The authors demonstrate that firms with higher levels of positive board acquisition experience make better acquisition decisions and are better at integration of the target firm. Overall, these studies indicate that the target CEOs' and acquirer board's expertise and experience increases deal synergies and long-term performance, and that female executives or board members are less likely overbid and make value-destroying acquisitions. Having creditors serve on the board reduces returns to shareholders however, as wealth may then be transferred from shareholders to creditors.

Table 5: CEO and Board Member Characteristics, Multiple Directorships, and Board Composition

This table shows studies on CEO and board characteristics, multiple directorships, and board composition. Legend: SRS (Short-run stock returns), LRS (Long-run stock returns), LRO (Long-run operating performance); CARs (Cumulative Abnormal Returns), BHARs (Buy-and-Hold Returns), CTARs (Calendar Time Abnormal Returns), CTPRs (Calendar Time Portfolio Regression Returns); S (Significant), NS (Not Significant), M/B (Market to Book), ROS (Return on Sales), ROA (Return on Assets), TFP (Total Factor Productivity).

Paper	Return type, event window	Sample size, country, and period	Performance measure	Effect on performance	Results
Krishnan et al. (1997)	LRO, 3 years	147 acquisitions, public acquirers, 1986-1988	ROA, controlled for prior ROA and industry performance	Positive for complementary mgt. teams	ROA increases by 5.34% if complementary backgrounds of management teams of bidder and target. Decrease of -2.83% if turnover in target top management team.
Brown and Maloney (1999)	SRS, [-1,+1]	106 acquisitions, US public acquirers, 1980-1986	CARs	Positive	Multiple directorships increase returns by 0.018%.
Ahn et al. (2010)	SRS, [-2,+2]	1,207 completed deals, public US acquirers, 1998-2003	CARs	Negative	Firms with busy directors earn -1.93%, non-busy directors -0.45%.
	LRO, 3 years		ROS, ind.-adj.	Negative	ROS decreases by 0.026% for busy acquirers, NS for non-busy acquirers.
Hilscher and Sisli-Ciamarra (2013)	SRS, [-5,+5]	1,641 completed acquisitions, S&P500 acquirers, 2002-2007	CARs, CDS spread for creditors	Negative	Creditor on board decreases CARs and CDS spread, firm value decreases by 5.1%.
Huang and Kisgen (2013)	SRS, [-1,+1]	86 deals pre-transition, 58 post-transition of executive, large public firms, 1993-2005	CARs, market-adjusted and raw (Diff-In-Diff)	Positive for firms with female execs.	Firms with higher fraction of female executives earn 2% higher returns.
	LRS and LRO			NS	
Jenter and Lewellen (2015)	SRS, [-20,+1]	2,801 completed bids, public US firms targets, 1989-2007	CARs	NS	
Field and Mkrtchyan (2017)	SRS, [-1,+1]	1,766 completed deals, public US acquirers, 1998-2014.	CARs	Positive	Directors with low acquisition experience earn insignificant returns, those with high acquisition experience earn 1.17%. More prior acquisitions with positive CARs earns higher returns for experienced directors.
	LRO, 1 year		ROA, ind.-adj.; TFP	Positive	Experienced directors increase ROA (TFP) with 0.07% (0.002) and more prior deals with positive CARs increase ROA (TFP) with 0.35% (0.008).

5.5 Corporate culture

When two firms merge and become one entity, corporate cultures and traditions may clash and resistance by employees and other stakeholders may slow down the post-merger integration process. Whereas the finance and economics literature on culture clashes in M&As is scarce, the strategy and management literature frequently illustrates post-merger integration frictions through theoretical integration models, measuring strategic similarity of merging firms, or the analysis of human relations management.[12] Target firm employees react negatively to merger announcements if they are concerned about their job security, career prospects, and loss of autonomy and organizational identity (Napier, 1989). This may then result in a reduction of productivity and an increase in turnover and absenteeism.

The integration process is crucially affected by factors such as the compatibility of administrative practices, management styles, organizational structures, and organizational cultures, but also by the degree of post-merger consolidation and the extent to which organizational integrity can be retained (Ollie, 1994). Although management can facilitate the integration process in the combined firm through leadership, a new identity for the merged firm, and common goals, the perception of cultural differences between the bidding and target firm negatively affects the bidder's announcement returns (Chatterjee, et al., 1992). In the context of cross-border M&As, Datta and Puia (1995) report lower bidder returns the larger the cultural distance between the target and acquirer. They argue that cultural differences result in inadequate knowledge of the foreign market and overpayment by the bidder which reduces its market value.[13]

Focusing on the importance of employment policies in the integration process, Liang, Renneboog, and Vansteenkiste (2017) find that although generous employment policies increase acquirer shareholder returns around domestic deals, uncertainty regarding the integration of these policies in a foreign target firm reverses this effect in cross-border deals. This is driven by the provision of monetary incentives such as bonus plans and health insurance benefits, but acquisition experience in the target's country, weak unions, and weak social security laws in the target's country can reduce the negative effect in cross-border deals.

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[12] See for example Buono, Bowditch, and Lewis (1985) for a bank merger case study, Weber, Shenkar, and Raveh (1996) for a discussion on the difference between national and corporate culture fit, Weber and Camerer (2003) for experimental evidence, Stahl and Voigt (2008) for an overview of the organizational literature, Weber and Fried (2011), Marks and Mirvis (2011), Shenkar (2012), Bauer and Matzler (2014). None of these papers directly assess short- or long-run returns, however.

[13] In the finance literature, Fiordelisi and Ricci (2013) distinguish competition-, creation-, collaboration- and control-oriented cultures and relate these to CEO turnover and firm performance, but do not investigate the effect on takeover outcomes. The probability of a CEO change is positively influenced by competition- and creation-oriented cultures, but these types of cultures attenuate the relation firm performance-turnover.

Table 6: Corporate Culture

This table shows studies on corporate culture. *Legend:* SRS (Short-run stock returns), LRS (Long-run stock returns), CARs (Cumulative Abnormal Returns),); S (Significant), NS (Not Significant).

Paper	Return type, event window	Sample size, country, and period	Perf. measure	Effect on perf.	Results
Datta and Puia (1995)	SRS [-1,0] up to [-30,+30]	112 cross-border deals by public US acquirers, 1987-1990	CARs	Negative	High cultural distance deals earn 5.48% lower returns versus low cultural distance deals over [-30,+30], but NS over shorter event windows.
Liang et al. (2017)	SRS, [-1,+1]	4,565 global M&A deals, public acquirers, 2002-2014.	CARs	Positive in domestic, negative in cross-border	0.22% higher returns in for a one-standard deviation increase in employee relations in domestic deals, 0.43% lower returns in cross-border deals.

5.6 Ownership structure

An important factor driving both M&A likelihood and deal performance is the concentration and composition of a firm's ownership. Whereas the degree of ownership concentration may reflect the degree of investor protection created by the legal and institutional environment (La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 1998), reactions towards takeovers may also significantly vary by type of owner as they mirror these owners' personal objectives and interests. One should thus not only consider the degree of ownership concentration but also the distribution of equity stakes across different types of shareholders.

Table 7: Ownership Structure

This table shows studies on ownership structures. *Legend:* SRS (Short-run stock returns), LRS (Long-run stock returns), LRO (Long-run operating performance); CARs (Cumulative Abnormal Returns), BHARs (Buy-and-Hold Returns), CTARs (Calendar Time Abnormal Returns), CTPRs (Calendar Time Portfolio Regression Returns); S (Significant), NS (Not Significant), ROA (Return on Assets), B/M (Book-to-Market). FF3 stands for the Fama-French models comprising 3 factors (market, size, and B/M).

Paper	Return type, event window	Sample size, country, and period	Performance measure	Effect on performance	Results
Panel A. Ownership Structure and Family Firms					
Ben-Amar and André (2006)	SRS, [-1,+1]	327 completed deals, Canadian public acquirers, 1998-2002	CARs	Positive	Family firms earn 2.1%, non-family firms earn 0.2%.
Bauguess and Stegemoller (2008)	SRS, [-1,+1]	1,411 completed acquisitions, public S&P500 acquirers, 1994-2002	CARs	Negative	Family firms earn -0.74% lower returns, but +0.04% if large board and +0.26% if more insiders.
Basu et al. (2009)	SRS, [0,+2]	221 completed deals, newly US public firms acquirers and/or targets, 1993-2004	CARs, corrected for self-selection	Positive	Acquiring firms with low levels of family ownership earn 5% lower returns. Targets with low family ownership earn higher acquirer returns.
Shim and Okamuro (2011)	LRO, 3 years, [-3y,+3y]	253 completed merger deals, Japanese listed firms, 1955-1973	ROA, Tobin's Q, sales growth, employment growth; all ind.-adj.	Negative	Acquirer ROA increases by 0.6% in non-family firms, NS for family firms. Tobin's Q decreases by 0.7% in family firms, employment grows by 0.4%.
Caprio et al. (2011)	SRS, [-2,+2] and [-30,+30]	2,275 completed deals, public Cont. Eur. acquirers, 1998-2008	CARs	NS	
Panel B. Ownership Structure and Managerial Ownership					
Hubbard and Palia (1995)	SRS, [-4,+4]	172 completed mergers, public US acquirers, 1985-1991	CARs	Non-linear	If managerial ownership <5%, CARs are +0.33%; -0.16% if >5%, NS if > 25%.
Wright et al. (2002)	SRS, [-1,0] and [-3,+3]	US public acquirers and targets, 1993-1997	CARs, controlled for institutional ownership, acquisition experience, size, and relatedness.	Non-linear	$100 million increase in value of CEO stock ownership increases returns by 6.7% (7.2%), unit increase in squared value of CEO stock ownership decreases returns by 2.8% (3%) over [-1,0] ([-3,+3]) window.
Schneider and Spalt (2017a)	SRS, [-1,+1]	3,538 takeover bids, public US targets and acquirers, 1987-2008.	CARs	Negative	Acquirer CARs are 0.87% lower if a CEO with high ownership acquires a risky target, and they are 0.36% lower if a CEO with lower ownership acquires a risky target (relative to a less risky target).
	LRO, [-1y,+1y]		ROA	Negative	Acquirer ROA decreases with 1% in the year after a deal announcement if target riskiness increases with one st. dev.

Table 7 Cont'd. Panel C. Ownership Structure, Institutional Investors, and Investment Horizons

Wright et al. (2002)	SRS, [-1,0] and [-3,+3]	US public acquirers and targets, 1993-1997	CARs, controlled for institutional ownership, acquisition experience, size, and relatedness	Positive	Acquirer CARs [-1,0] ([-3,+3]) increase by 3% (1.4%) in case of activist institutional ownership.
Gaspar et al. (2005)	SRS, [-63,+126] and [-1,+1]	3,814 acquisition announcements, US public targets, 1980-1999	CARs	Negative	High short-term investor turnover earns -0.452% over [-63,+126]; insignificant over [-1,+1].
	LRS, 3 years		CTPRs and CTARs based on FF3, controlled for institutional shareholder turnover	Negative	Acquirer monthly CTPRs/CTARs decrease by -0.7% if short-term investors are present.
Chen et al. (2007)	SRS, [-1,+1]	2,150 announced deals, US public acquirers, 1984-2001	CARs, market model	NS	
	LRS and LRO, 3 years		BHARs and CTPRs, ind.-adj.; change in ROA; changes in analyst earnings forecasts (controlled for size, B/M, pre-acq. return).	Positive	Firms with long-term independent institutional investors earn 20% higher BHARs/CTPRs, 5% higher increase in ROA, 1% higher increase in EPS.

5.6.1 Family firms

Around the world, a large fraction of publicly listed firms have concentrated ownership in the form of a dominant owner, in many cases a (founding) family.[14] With the majority of M&A research being based on US samples, it remains an important question as to whether family firms are better at making takeover decisions than widely held corporations. For the US, Bauguess and Stegemoller (2008) find significantly negative announcement CARs for acquisitions by S&P500 family firms, however they discover that these negative effects are alleviated if the bidding firm has a large board or more insiders. Similarly, Shim and Okamuro (2011) consider Japanese listed family firms and report that their long-run operating performance is significantly lower than that of non-family firms. For stock-financed deals by public US family firms, Basu, Dimitrova, and Paeglis (2009) report that the effect of family ownership on M&A value creation depends on the level of ownership: although family entrenchment induces a negative relationship at low levels of family ownership, a better alignment of family interests with those of minority shareholders results in a positive relationship at high levels of family ownership. For continental Europe, Caprio, Croci, and Del Giudice (2011) do not find evidence that acquisitions by family-controlled firms are value-destroying, and for Canadian public family firms, Ben-Amar and André (2006) even find significantly higher acquirer announcement returns, that increase even more for firms where the acquirer's CEO is a member of the controlling family. Overall, these results indicate that the link between family ownership and M&A performance varies considerably across countries, which suggests that it may depend on the legal and institutional environment. The long-run evidence on merger performance by family firms is still scarce and thus provides scope for future research.

5.6.2 Managerial ownership

As predicted by agency theory, managerial ownership should have a beneficial effect on merger performance, as it aligns the interests of management and shareholders. Nevertheless, empirical studies provide here also mixed results. An early study by Lewellen et al. (1985) unveils a positive relationship between the equity stake owned by

[14] La Porta, Lopez-de-Silanes, and Shleifer (1999) report that 50% of all large public firms worldwide are family-controlled. Although family ownership mostly predominates in continental Europe, Anderson and Reeb (2003) still report that 16% of S&P500 firms are managed by the founding family.

senior management and acquirer returns. More recent evidence, however, depicts a non-linear relation between acquirer announcement returns and managerial ownership. Returns are generally highest at moderate (between 5% and 25%) levels of ownership, because at lower ownership levels agency costs such as perquisite consumption reduce returns (Hubbard and Palia, 1995) and at higher levels of managerial ownership beneficial risk-increasing strategies are replaced by non-value-maximizing risk-reducing strategies because managers become more risk-averse (Wright et al., 2002). Therefore, at high and low levels of ownership, misalignment of interests results in inefficient takeover decisions and negative announcement returns, whereas management and shareholder interests are most aligned at moderate levels of ownership. Schneider and Spalt (2017a) provide evidence for a gambling channel through which CEOs with high ownership (who have more power to influence takeover decisions) are more likely to acquire riskier targets, defined as having high idiosyncratic stock volatility. Takeovers involving risky targets perform worse in the short and in the long run, with a 1% decrease in ROA in the year after the deal announcement for a one standard deviation change in target risk Although these CEOs do not consciously make bad decisions for shareholders, but they tend to go with their guts and systematically make mistakes.

5.6.3 Institutional investors and investment horizons

Investors can be distinguished based their type or degree of ownership concentration, but the literature has further differentiated investors (and institutional investors in particular) based on their investment horizons. Short-term investors have few incentives to monitor management's decision making as they have less time to learn about the firm and are less likely to reap the corresponding benefits of monitoring which may take time to be impounded in share prices, whereas long-term investors have stronger incentives to monitor. As investor horizons are hard to identify for retail investors, the empirical research is limited to analyses of institutional investors' horizons. Monitoring by long-term institutional investors reduces management-shareholder agency conflicts such that acquirer announcement returns, long-term post-acquisition stock returns, and long-term operating performance are significantly higher when long-horizon investors are present (Gaspar, Massa, and Matos, 2005; Chen, Harford, and Li, 2007). Moreover, these firms are also less likely to announce deals with the worst returns, but if announcement returns

are indeed poor, firms with long-horizon institutional investors are more likely to withdraw their bids.

5.7 Cultural distance

In the period 1986 to 2000, cross-border acquisitions accounted for about 26% of the total value of acquisitions (Conn et al., 2005), but this share of cross-border mergers doubled to 45% in 2007 (Erel, Liao, and Weisbach, 2012). Although cross-border mergers enable firms to access new markets and benefit from economies of scale and scope, they also complicate the integration process not only because rules and regulations are different, but so are national cultures, norms, and values. Theoretically, cultural differences can, on the one hand, create opportunities by enabling knowledge transfers and exposing the firm to new practices and techniques (Morosini, Shane, and Singh, 1998; Chakrabarti et al., 2008; Sarala and Vaara, 2010; Steigner and Sutton, 2011),[15] while, on the other hand, they can increase social conflicts and induce post-merger coordination difficulties that curdle the achievement of synergies (Rahahleh and Wei, 2013; Aybar and Ficici, 2009; Conn et al., 2005; Siegel, Licht, and Schwartz, 2011).

As a consequence, it is not surprising that the short- and long-term takeover returns vary with the bidder's and target's country specificities (Gregory and McCorriston, 2005). Ahern, Daminelli, and Fracassi (2012) mainly consider cultural differences in trust and individualism, and although the short-run effects show some evidence that mergers between firms in culturally closer countries result in higher combined announcement effects, they find no consistent significant effect on long-run acquirer stock returns. Other studies consider the effect of country cultures on M&A intensity (Chan and Cheung, 2015) and merger premiums (Lim, Makhija, and Shenkar, 2016), but there are hardly any studies relating country culture and long-run deal performance.

There is however some evidence on cultural differences in the context of innovation and high-tech firms: Steigner and Sutton (2011) report that long-term operating performance and stock returns are significantly higher in deals (a) with a large cultural distance between target and acquirer and (b) where the acquirer has a high level

[15] We will here discuss the main findings in the finance literature; for an overview in the management literature, see Stahl and Voigt (2008).

of R&D. They thus conclude that the combination of a high level of intangibles or R&D with a high cultural distance is key to internalizing synergetic benefits. Reus and Lamont (2009) confirm this conclusion and state that a higher cultural distance negatively affects returns, except in the case of acquisitions by high-tech firms or firms with a high level of intangible assets. Cultural distance can thus increase shareholder returns in firms with higher learning opportunities, such as those with a high level of intangibles and those in high-tech and R&D-intensive industries.

Table 8: Country Cultural Distance

This table shows studies on country-level cultural distance. Legend: SRS (Short-run stock returns), LRS (Long-run stock returns), LRO (Long-run operating performance); CARs (Cumulative Abnormal Returns), BHARs (Buy-and-Hold Returns), CTARs (Calendar Time Abnormal Returns), CTPRs (Calendar Time Portfolio Regression Returns); S (Significant), NS (Not Significant), B/M (Book-to-Market), ROS (Return on Sales). FF3 stands for the Fama-French models comprising 3 factors (market, size, and B/M).

Paper	Return type, event window	Sample size, country, and period	Performance measure	Effect on performance	Results
Morosini et al. (1998)	LRO, 2 years	52 cross-border acquisitions, Italian acquirers, 1987-1992	Sales growth (%)	Positive	Sales growth increases by 0.13% if larger cultural distance.
Conn et al. (2005)	SRS, [-1,+1]	4,344 acquisitions, UK public acquirers, 1984-1998	CARs	Negative	Domestic public deals earn -0.99%, cross-border public deals earn insignificant returns.
	LRS, 3 years		BHARs (adjusted for cross-sectional dependence) and CTARs, controlled for size and M/B.	Negative	Domestic public deals earn -19.78%, cross-border public deals earn -32.33%. Similar for CTARs.
Di Giovanni (2005)	No event study	3,774 cross-border deals, 1990-1999			1% increase of stock market/GDP is associated with a 1% increase in cross-border M&A activity. Firms invest more in countries wit which they trade and share a language.
Gregory and McCorriston (2005)	SRS, [-3,+1] and [-10,+10]	333 acquisitions, UK public acquirers, 1985-1994,	CARs	NS	
	LRS, 5 years		Bootstrapped BHARs (controlling for size and M/B), and CARs using FF3.	NS for EU, negative for US, positive elsewhere	US deals earn -27.09%, EU deals earn NS returns, and positiv returns elsewhere.
Chakrabarti et al. (2008)	SRS, [-1,+1]	1,157 completed cross-border deals, global public acquirers, 1991-2004	CARs	Negative	Acquirer CARs decrease by 0.01% for a 1% increase in cultura distance.
Aybar and Ficici (2009)	SRS, [-10,+10] and [-1,+1]	433 cross-border M&A announcements, emerging-market multinational acquirers (EMMs), 1991-2004	Standardized CARs	Negative	Acquirer SCARs are -1.38% at announcement date, -0.09% for [1,+1], -0.121% for [-10,+10].
Reus and Lamont (2009)	LRS, 3 years	118 US multinationals, 1998-2000	BHARs and CARs, relative to (country) market return.	Positive	Acquirer BHARs increase by 19% for a 1% increase in cultura distance.

Table 8 Cont'd: Country Cultural Distance

Sarala and Vaara (2010)	LRO, one year	44 international acquisitions, Finnish acquirers, 1993-2004	Knowledge transfer (0-5)	Positive	Knowledge transfer increases by 0.361 (on scale 0 to 5) if larger cultural distance.
Steigner and Sutton (2011)	LRO and LRS, 3 and 5 years	460 completed cross-border deals, US public acquirers, 1987-2004	LRO: ROS, industry-adjusted, 3 years post-merger. LRS: CTPRs based on FF3 and BHARs, 5 and 3 years post-merger.	Positive	Acquirer CTPRs are -0.84% if target is in country with large cultural distance. NS if similar culture. Acquirer ROS/CTPRs increases if acquirer has many intangible assets in deal with large cultural distance.
Siegel et al. (2011)	No event study	29,470 cross-border deals, 1995-2008		Negative	The greater the egalitarianism distance between acquirer and target countries, the greater the rate of overinvestment and possible value destruction that follows an M&A.
Ahern et al. (2012)	SRS, [-1,+1]	827 deals, >$1m completed cross-border deals, 1991-2008, public worldwide acquirers and targets	CARs	Negative	Combined CARs reduce by 28% if increase in trustfulness or individualism (from 25th to 75th percentile).
	LRS		BHARs, controlled for country-level market equity, B/M, and momentum	NS	
Rahahleh and Wei (2013)	SRS, [-2,+2]	1,079 deals from emerging countries, 1985-2008, public acquirers from emerging countries	CARs	Negative	First deals earn 2.57%, subsequent deals earn 0.32% if large cultural distance. Difference is NS for low cultural distance deals.
Dikova and Sahib (2013)	SRS	1,223 cross-border acquisitions, US and European public acquirers, 2009-2010	Stock price return [-3m; +1m]	Positive effect of cross-border experience	Acquirer stock price increases by 0.614% if target is culturally distant and in case the cross-border acquisition experience is limited.

5.8 Geographical distance

The post-merger integration process is not only affected by the cultural distance between the two merging parties, also geographical distance can create integration frictions. Geographic proximity has some obvious advantages in that the acquirer of geographically closer targets may have an information advantage, resulting in higher announcement returns for more proximate targets (Uysal et al., 2008). This effect is documented not only for takeover deals, but also for divestitures: Landier et al. (2009) find that the CARs of the divesting US firms are significantly higher in case the firms divest in-state divisions relative rather than when they divest out-of-state divisions. Stroup (2014) however finds that the relative informational disadvantage for foreign acquirers declines with a CEO's cross-border acquisition experience. In addition, Grote and Umber (2007) even argue that geographic proximity may create psychological illusions, such as the illusion of control (due to local networks) and the illusion of private benefits for the acquiring management (such as an increasing local status). They argue that "proximity-related overconfidence" results in overpayment and hence negative bidder returns.

Table 9: Geographical Distance

This table shows studies on geographical distance. *Legend:* SRS (Short-run stock returns), LRS (Long-run stock returns), LRO (Long-run operating performance); CARs (Cumulative Abnormal Returns), BHARs (Buy-and-Hold Returns), CTARs (Calendar Time Abnormal Returns), CTPRs (Calendar Time Portfolio Regression); S (Significant), NS (Not Significant).

Paper	Return type, event window	Sample size, country, and period	Perf. measure	Effect on performance	Results
Grote and Umber (2007)	SRS, [-1,+1]	545 deals, US public acquirers and targets, 1990-2004	CARs	Negative	Increase in geographical distance decreases CARs by 0.06%.
Uysal et al. (2008)	SRS, [-2,+2]	3,738 completed deals, US public acquirers, 1990-2003	CARs	Negative	Local transactions earn 2.37% in local transactions, non-local transactions earn 0.90%.
Landier et al. (2009)	SRS, [-1m, +1m]	12,783 divestitures, public acquirers, 1990-2004	CARs	Negative	In-state divestitures earn 3.44%, out-of-state divestitures earn -0.41%.
	LRS, [-1m, +3m]		CARs	Negative	In-state divestitures earn 2.01%, out-of-state divestitures earn -0.94%.
Stroup (2014)	SRS, [-1,+1]	US public S&P1500 acquirers, 1980-2008	CARs	Positive	Acquirer CARs are 3% higher if acquirer has a non-executive director with cross-border acquisition experience.

5.9 Spillovers in corporate governance and investor protection

Although cross-border M&As can complicate the creation and realization of synergies, they can also create additional sources of synergies. In deals where bidder and target are subject to cross-country differences in corporate governance regulation and investor protection, spillovers in governance standards can benefit both bidder and target shareholders and bondholders. Bidder shareholders benefit in cross-border deals when the bidder's corporate governance standards are stricter (more shareholder-oriented) than the target's, as this facilitates the bidder's ability to restructure the target and shifts the focus (at the target level) to shareholder value creation rather than private managerial benefits (Martynova and Renneboog, 2008b; Capron and Guillen, 2009). Such effects have been shown to hold both in the short run and in the long run (Wang and Xie, 2009), and in an international setting (Martynova and Renneboog (2008b) for intra-European deals, or Capron and Guillen (2009) for worldwide deals).

The wealth effects for target firms in deals where investor protection is better in the acquirer country relative to the target country depend on the location of the target firms: Starks and Wei (2004) report lower target returns (but they only consider US target firms and stock-financed deals) whereas Bris and Cabolis (2008) and Martynova and Renneboog (2008b) report higher target announcement returns for a global sample. Not only differences in the level of shareholder protection can induce spillover effects, acquirer stock and bond returns are also affected by creditor rights protection (Renneboog and Szilagyi, 2008; Kuipers, Miller, and Patel, 2009; Renneboog, Szilagyi, and Vansteenkiste, 2017) and employee rights protection (Capron and Guillen, 2009; Dessaint, Golubov, and Volpin, 2017).

A higher level of employee rights protection in the target country reduces acquirer returns, as this restricts the acquirer's ability to restructure the target firm. Although a higher level of creditor rights protection in the acquirer country also reduces acquirer stock returns, acquirer bondholders react positively to stronger creditor protection in the target's country, as multinational insolvency regulations allow creditors to start main insolvency proceedings under such a jurisdiction.

Table 10: Corporate Governance and Investor Protection

This table shows studies on spillovers in corporate governance and investor protection. *Legend:* SRS (Short-run stock returns), LRS (Long-run stock returns), LRO (Long-run operating performance); CARs (Cumulative Abnormal Returns), BHARs (Buy-and-Hold Returns), CTARs (Calendar Time Abnormal Returns), CTPRs (Calendar Time Portfolio Regression Returns); S (Significant), NS (Not Significant), ROA (Return on Assets), ROS (Return on Sales).

Paper	Return type, event window	Sample size, country, and period	Performance measure	Effect on performance	Results
Starks and Wei (2004)	SRS, [-5,+5]	377 completed cross-border (stock-financed) deals, US targets, 1980-1998	CARs	Negative	A one unit increase in acquirer country shareholder protection increases returns by 0.07%.
Bris and Cabolis (2008)	SRS, [-1,+1] and [-2,+100]	506 cross-border completed 100% acquisitions, public targets, 1989-2002	BHARs (matched domestic sample based on year, target country and industry, target total assets)	Positive for target	Higher level of shareholder protection in acquirer relative to target country earns a 5.78% higher return for target shareholders, and 13.41% lower target return if bidder country offers lower level of shareholder protection than the target's country.
Martynova and Renneboog (2008b)	SRS, [-1,+1], [-5,+5], and [-60,+60]	737 intra-European cross-border deals, public acquirers or targets, 1993-2001	CARs	Positive	Stricter governance standards in bidder relative to target earn 0.017% for bidder shareholders and 0.011% for target shareholders.
Wang and Xie (2009)	SRS, [-5,+5]	396 completed acquisitions (297 for long-run sample), US public acquirers and targets, 1990-2004	CARs	Positive	Combined CARs increase by 0.32% for a unit increase in the difference in shareholder rights between acquirer and target.
	LRO, 3 years		ROA and ROS (controlled for ind. and ROA at t-1).	Positive	Combined ROA (ROS) increase by 0.003% (0.004%) for a unit increase in shareholder rights difference.
Kuipers et al. (2009)	SRS, [-20,+5]	181 completed cross-border tender offers, US public target firms, non-US public acquirers, 1982-1991	CARs	Negative	A unit increase in creditor protection decreases bidder returns by 0.41%, and by 0.04% if target is incorporated in Delaware. A one unit increase in shareholder protection increases returns by 0.14%.
Capron and Guillen (2009)	LRS, 2-3 years	253 worldwide acquisitions, public and private acquirers, 1988-1992	Target restructuring and resource-redeployment between target and acquirer (scale 0-7)	Positive for shareholder rights, negative for employee rights	Target restructuring: +0.41 if stronger shareholder rights protection in acquirer country than in target country (on scale 0-7); -0.54 if stronger employee rights protection in acquirer country.
John et al. (2010)	SRS, [-1,+1]	1,525 cross-border deals, US public acquirers, 1984-2005	CARs	Positive	Public targets from countries with strong shareholder protection earn -0.76%; public targets from countries with low shareholder protection earn 0.94%.
Dessaint et al. (2017)	SRS, [-3,+3]	7,129 worldwide deals, large public acquirers and targets, 1985-2007	CARs	Negative	Returns decrease by 1.16% if the country of the target firm increases employment protection.
Renneboog et al. (2017)	SRS, [-5,+5]	1,100 cross-border deals, 2000-2013	Bond CARs	Positive	Acquirer bondholder returns increase by 7 (8) basis points if there is stronger creditor rights protection (enforcement of creditor rights) in the target's country relative to the bidder's country.

5.10 Industry and product market relatedness

While we previously discussed differences in national and corporate cultures on the post-merger integration process, we now turn to industry-relatedness of bidder and target, product market overlap, and strategic compatibility, each of which may affect the post-merger integration process. Related or focused acquisitions are expected to provide better returns relative to diversifying mergers because the acquirer is more likely to have the skills and resources required to operate and integrate the target firm (Rhodes-Kropf and Robinson, 2008). Martynova, Oosting, and Renneboog (2007), however, do not find evidence that the difference between pre- and post-takeover long term operating performance (corrected for the performance of a matched sample of peer companies) differs between focused and diversifying transactions.[16]

Moreover, although the risk of managers' undiversified personal portfolios is reduced in diversified firms, managerial entrenchment is intensified (Amihud and Lev, 1981; Shleifer and Vishny, 1989).[17] Fan and Goyal (2006) find that vertical mergers result in significantly larger combined announcement returns than diversifying mergers. Asset complementarity (as proxied by industry relatedness) can thus considerably decrease business risk by facilitating the post-acquisition integration process and leveraging the acquiring firms' pre-existing resources and strengths in new markets. This is confirmed by Schoar (2002) in a study at the plant-level: firms that acquire plants in unrelated industries experience a subsequent decline in total firm productivity, but acquired plants integrated into an already diversified firm increase their productivity more than plants moving from a diversified firm into a stand-alone firm.

[16] Around the takeover announcement, Martynova and Renneboog (2011a) unveil that a diversifying bidder's short-term CARs (capturing the announcement effect as well as the two-month price movement prior to the announcement) are 3% lower than those of a bidder with a focused takeover policy. The target shareholders subject to a diversifying bid benefit from CARs that are 6% larger than those subject to a focused bid. This evidence along with the evidence from the literature on the conglomerate discount (which frowns upon corporate diversification), implies that managers who undertake diversifying takeover transactions overpay for the target and their diversification policy may stem from empire-building intentions.

[17] In the 1960s and 1970s, conglomerate mergers exhibited positive abnormal returns to acquirers (Matsusaka, 1993; Hubbard and Palia, 1999) because the internal capital markets of conglomerates made up for poorly functioning international capital markets. These effects are no longer observed in studies since the 1980s, however.

Table 11: Industry and Product Market Relatedness

This table shows studies on industry and product market relatedness. *Legend:* SRS (Short-run stock returns), LRS (Long-run stock returns), LRO (Long-run operating performance); CARs (Cumulative Abnormal Returns), BHARs (Buy-and-Hold Returns), CTARs (Calendar Time Abnormal Returns), CTPRs (Calendar Time Portfolio Regression Returns); S (Significant), NS (Not Significant), ROA (Return on Assets), ROS (Return on Sales), B/M (Book-to-Market), EBITDA (Earnings before interest, taxes, depreciation and amortization), WC (Networking Working Capital), BV (Book value).

Paper	Return type, event window	Sample size, country, and period	Performance measure	Effect on perf.	Implications
Schoar (2002)	LRO, 3 years	12,000 acquired plants, US acquirers and targets, 1977-1995	Change in total factor productivity (TFP), return on capital, operating profit	Positive	Plant TFP decreases by -0.07% if plant moves to diversified firm (relative to focused firm). Similar results for return on capital and operating profit.
Fan and Goyal (2006)	SRS, [-1,+1]	2,162 completed merger deals, US public acquirers and targets, 1962-1996	CARs	Positive	Vertical mergers earn combined CARs of 2.5%, diversifying mergers earn 1.4%.
Martynova et al. (2007)	LRO , 3 years	858 intra-European deals 1997-2001	(EBITDA - ΔWC)/ $BV_{assets,}$ Relative to matched peers (Industry-Size-Performance)	NS	
Hoberg and Phillips (2010)	SRS,[-10,0]	6,629 completed deals, public acquirers or targets, 1997-2006	CARs, adjusted standard errors	Positive	Combined returns increase by 0.7% if target and acquirer are in similar product markets.
	LRO, 3 years		ROS, sales, new product introductions.	Positive	If merging firms have same product markets, the combined profitability growth increases from -2.3% to -0.6%, combined sales growth increases from -8.4% to 4.6%, and combined product description growth increases from -5.9% to 14.6%.
Custodio and Metzger (2013)	SRS, [-1,+1] and [-5,+5]	4,844 diversifying acquisition deal announcements, US public acquirers and US targets, 1990-2008	CARs	Positive	Acquirer returns are 1.3% higher if acquirer CEO has expertise in the target's industry.
	LRO and LRS, 3 years		LRS: BHARs, size and B/M matched portfolios LRO: Residual of AR(1) of post-merger industry-adjusted ROA on pre-merger ROA	NS	
Bena and Li (2014)	LRO, 1-3 years	1,762 completed deals, US public acquirers and targets, 1984-2006	Innovation output (patent index).	Positive	0.552 higher post-merger innovation output (on patent index with median 4) if the pre-merger technological overlap of the merging firms is above average.

Custodio and Metzger (2013) find that CEO experience in the target's industry increases acquirer announcement returns as this makes the acquirer a better negotiator and consequently enhances its ability to capture more of the deal's surplus. However, these results do not persist in the long run, as the combined CARs and long-run performance are not affected by a CEO's experience. While most studies on industry diversification are

based on industry SIC or NAIC codes, Hoberg and Phillips (2010) argue that these industry classes do not accurately reflect potential asset complementarities. Using text-analysis, they create industries based on a firm's product descriptions. Their findings confirm the superior performance of related mergers, since short-term stock returns and long-term operating profitability and sales are higher for deals between firms with more product market similarities. Bena and Li (2014) consider a different type of relatedness: technological overlap. Post-merger innovation output (e.g. patents) increases for deals where there was a pre-merger technological overlap between bidder and target, but they do not study the long-run performance of the deal. Overall, almost all available evidence supports the superior performance of related acquisitions relative to unrelated or diversified acquisitions, regardless of whether relatedness is measured by means of industry classifications, product market compatibility, complementariness in the supply chain, or technological overlap.

5.11 Distressed target acquisitions

A small but important part of the market for corporate control comprises disciplinary takeovers of poorly performing or financially distressed firms (Franks, Mayer, and Renneboog, 2001). When a US firm becomes financially distressed, it can either voluntarily file for bankruptcy and seek protection against its creditors (Chapter 11), or its creditors can file the bankruptcy in order to liquidate the firm (Chapter 7). In the former case, the debt and equity claims of the distressed firm are likely to be restated following a majority approval by its claimants supervised by the court whereas in the latter case, (part of) the firm's assets can be liquidated. While there is considerable empirical evidence on the wealth effects for the sellers of distressed assets, there is much less evidence on the wealth effects for the buyers of such assets. On the one hand, sales of distressed targets below their fundamental value may benefit acquirers as they can purchase the firm at a discount. On the other hand, if acquirers who would benefit most from acquiring the target operate in the same industry and if distress occurs at the industry level, this may result in ultimately worse deals and worse overall returns (Shleifer and Vishny, 1992).

Past research mainly focused on the costs associated with fire sales of distressed or bankrupt assets. A number of studies from the 1990s examine acquisitions of bankrupt

firms or firms falling under Chapter 11 but the conclusions are mixed, possibly because of the small samples that comprise 50 cases at most (e.g. Clark and Ofek, 1994; Hotchkiss and Mooradian, 1998). More recent research by Meier and Servaes (2014) shows that acquirers of distressed or bankrupt assets generate an increase in shareholder wealth over the short run, especially in the case of acquisitions of selected assets (and not of the whole bankrupt or distressed firm). When a distressed target is purchased, the combined firms' returns are not different from the returns of non-distressed acquisitions. Still, the distressed target announcement returns are significantly lower, indicating that a larger share of the gains and synergies accrues to the acquirer.[18]

These results are largely in line with the findings by Jory and Madura (2009) who confirm the increase in expected returns (positive short-run returns) for the acquirer, but conclude that the expected returns are not materialized over the long term. Using a less strict definition of "distress" (negative net income), Ang and Mauck (2011) find contradicting evidence in that acquirers of distressed targets earn negative announcement returns, but target returns exceed those of non-distressed targets. In line with earlier studies however, they do not find evidence that acquirers benefit from purchasing distressed targets in the long run.

Overall, acquirers of distressed target assets experience significant gains in the short run indicating that bidders benefit from purchasing distressed targets at a discount. However, the evidence on long-run performance is scarce and mostly statistically insignificant.

[18] A recent theoretical study by Almeida, Campello, and Hackbarth (2011**)** shows that the acquirers of financially distressed firms are the more liquid firms in their industry, which suggests that even if there are no operational synergies to be realized, the presence of financial synergies could be a trigger to purchase distressed assets.

Table 12: Distressed Target Acquisitions

This table shows studies on distressed target acquisitions. *Legend:* SRS (Short-run stock returns), LRS (Long-run stock returns), LRO (Long-run operating performance); CARs (Cumulative Abnormal Returns), BHARs (Buy-and-Hold Returns), CTARs (Calendar Time Abnormal Returns), CTPRs (Calendar Time Portfolio Regression Returns); S (Significant), NS (Not Significant), ROA (Return on Assets), ROS (Return on Sales), M/B (Market-to-Book), CF (Cash-Flow).

Paper	Return type, event window	Sample size, country, and period	Perf. measure	Effect on perf.	Results
Clark and Ofek (1994)	LRS and LRO, 3 years, [-3y,+3y]	38 takeovers of distressed firms, public acquirers and targets, 1981-1988	LRS: beta and industry-adjusted CARs LRO: changes in industry-adjusted CF.	Negative	Acquisitions of distressed targets earn -26.5% (beta-adjusted).
Hotchkiss and Mooradian (1998)	SRS, [-1,+5]	55 acquisitions of bankrupt firms, US public acquirers, 1979-1992	CARs	Positive	Acquirer CARs are 4% for Chapter 11 deals versus -1.2% for matching deals. Target CARs are 19.1% for Chapter 11 deals versus 14.3% for matching deals.
	LRO, [-1y, +2y].		ROS, ind. -adj.	Positive	Change in ROS is 0.01% for Chapter 11 deals, 0.009% for matched deals.
Jory and Madura (2009)	SRS, [0,0], [0,+1], [0,+2]	314 acquisitions of bankrupt assets, public acquirers, 1985-2006	CARs	Positive	Returns are 0.87%, 1.89%, and 2.40% for [0,0], [0,+1], and [0,+2] if target is distressed.
	LRS, 3 years		BHARs, control firms selected on past ROA, past change in ROA, M/B, and industry.	NS	
Ang and Mauck (2011)	SRS, [-1,+1]	2,012 mergers, US public acquirers and distressed targets, 1977-2008	CARs	Negative	Acquirer CARs are -1.06% for acquisitions of distressed targets, -0.62% for non-distressed targets.
	LRS, 3 years		BHARs and CTPRs	NS	
Meier and Servaes (2014)	SRS, [-1,+1]	428 acquisitions, US public acquirers, distressed US targets, 1982-2012	CARs	Positive	Acquirer CARs are 2% higher if target is distressed (relative to non-distressed targets).

5.12 Post-merger restructuring and divestitures

Acquirers sometimes buy target firms with the intention to restructure the target firm by selling off specific parts or units. The decision to divest or sell-off a unit as part of the post-merger restructuring process is often perceived positively by the market. However, if the divested unit was previously acquired through a takeover, the market may perceive the initial acquisition decision to be a mistake. Ravenscraft and Scherer (1987) report that a staggering number (33%) of target firms acquired in the 1960s and 1970s were subsequently divested, and Porter (1987) even documents that more than half of the acquisitions made by US conglomerate acquirers were divested. Grimm's Mergerstat

Review (1989) reports that in the 1980s, at least 35% of M&As were classified as divestitures. More recently, Netter, Stegemoller, and Wintoki (2011) report that from 1992 to 2009 45% of acquiring firms undertook at least one divestiture. Maksimovic, Phillips, and Prabhala (2011) find that acquirers sell 27% of their target companies and close 19% of target firms' plants within three years after the acquisition. While this high divestiture rate could be interpreted as evidence supporting the value-destroying nature of M&As, there are also motivations other than poor performance for selling off (parts of) a target firm, such as decreasing synergies with the acquirer's core business, changes in antitrust regulations, or technological innovations (Weston, 1989; Kaplan and Weisbach, 1992).

Empirical evidence generally supports the value-creating hypothesis of divestitures. Kaplan and Weisbach (1992) find a divestiture rate of 44% for a sample of large US acquisitions completed between 1971 and 1982, but classify only 34% of these divestitures are resulting from unsuccessful earlier acquisitions (with operating performance as the criterion). This suggests that more than half of the acquisitions followed by a divestiture were not necessarily poor decisions. More recent evidence by Netter, Stegemoller, and Wintoki (2011) and Owen, Shi, and Yawson (2010) shows that the market does not on average react negatively to divestiture announcements: the short-run returns around divestitures by public US firms are positive and amount to 4.4% and 1.57%. Moreover, when accumulating the abnormal returns from all activities related to the transaction (acquiring a target firm, being a target, and divesting the target), the total return (for bidder and target) accrues to over 16% (Netter, Stegemoller, and Wintoki, 2011). The degree of success of the post-merger restructuring process is thus at least partly reflected in the market reactions from divesting specific plants or assets, and target firms.

Using an alternative performance measure, namely the long-term total factor productivity (TFP) of manufacturing plants transferred through acquisitions, Maksimovic, Phillips, and Prabhala (2011) show that plants retained by the acquirer significantly increase their productivity (TFP) and product margins and do so more than the plants sold off after the acquisition. Concentrating on the post-merger restructuring process, Li (2013) confirms that an increase in the acquirer's wealth is mainly driven by improvements in the target's productivity (TFP), but additionally finds that these improvements are induced by reduced capital expenditures, wages, and employment

(while keeping output constant). Overall, these studies show that divestitures of plants or firms are not value-destroying decisions, as the divesting firm's wealth generally increases. These divestitures are thus likely to be part of a larger post-merger restructuring plan and may have been anticipated at the takeover announcement, since acquired plants retained by the firm significantly improve their productivity by reducing production costs.

Table 13: Post-Merger Restructuring and Divestitures

This table shows studies on post-merger restructuring and divestitures. *Legend:* SRS (Short-run stock returns), LRS (Long-run stock returns), LRO (Long-run operating performance); CARs (Cumulative Abnormal Returns), BHARs (Buy-and-Hold Returns), CTARs (Calendar Time Abnormal Returns), CTPRs (Calendar Time Portfolio Regression Returns); S (Significant), NS (Not Significant).

Paper	Return type, event window	Sample size, country, and period	Performance measure	Effect on perf.	Implications
Kaplan and Weisbach (1992)	SRS, [-5,+5]	271 completed deals, US public acquirers, 1971-1982	CARs	Negative	Unsuccessful divestitures earn -4.42%, successful divestitures earn -0.64%, non-divested acquisitions earn -1.11%.
Owen et al. (2010)	SRS, [-1,+1]	797 completed divestitures, US public divesting firms, 1997-2005	CARs	Positive	Divestitures earn 1.57%.
Maksimovic et al. (2011)	LRO, 3 years, [-1y,+3y].	1,483 deals, US targets, 1981-2000	Plant-level industry-adjusted total factor productivity (TFP) and operating margin	Positive	Acquired plant TFP is 6.3% for retained plants, 2.7% for sold plants. Acquired plant operating margin is 2.1% for retained plants, 0.7% for sold plants.
Netter et al. (2011)	SRS, [-1,+1]	17,421 divestitures, US public acquirers, 1992-2009	CARs	Positive	Divested deals earn 4.4%, 16.3% when combining all deal transactions (acquisition and subsequent divestiture).
Li (2013)	SRS, [-1,+1]	660 deals, US public targets, 1981-2002	CARs	Positive	Combined CARs are 3%; Improvements in productivity (TFP) are associated with higher combined CARs.

5.13 Political economics

Cross-border takeovers are subject to differences in national and corporate cultures, geographical distance, and governance standards, but in some cases the influence of politics in economic decision-making affects corporate M&A policies. Politically connected firms are prevalent around the world (Brockman, Rui, and Zou, 2013), with government officials sitting on boards or even serving as executives. Although political connections can provide advantages by relaxing anti-trust standards or providing access to sensitive information, they can also impose additional costs on the firm by encouraging value-destroying takeovers or avoiding profitable but politically sensitive deals. Dinc and

Erel (2013) show for a sample of EU mergers that interventions by nationalist governments result in higher bid premiums and thus more expensive deals, and that foreign bids for firms in 'strategic' industries are deterred.

The effect of political connections in the form of state presence on the board or management team on merger performance seems to depend strongly on the institutional framework. Based on a global sample of politically connected firms in 22 countries, Brockman et al. (2013) show that the ultimate effect of political connections depends on the strength of the legal system and the level of corruption. They show that politically connected bidders earn 15% lower long-run abnormal stock returns relative to unconnected bidders when the corruption level is low and a strong legal system is in place. When legal systems are weak and or corruption levels are high however, politically connected bidders outperform their unconnected peers by 20%. Political connections between CEOs and local governments are more common in countries such as China (Liang, Renneboog, and Sun, 2017), where CEOs may pursue their own interests to advance their political careers. Such connections can serve as a buffer against the replacement of top management and increase discretion of management's actions. Indeed, Li and Qian (2013) show that in Chinese target firms with politically connected CEOs, there is less resistance to takeovers, as politically connected CEOs are more likely to be interested in advancing their political careers rather than representing the interests of controlling shareholders.

The influence of politics is not just prevalent through politically connected top management but also through the government's influence via the non-executive directors even when the government only owns a minority equity stake. Firms acquiring state-owned enterprises (SOEs) perform worse in the short and long-run relative to non-SOE acquirers, but these effects are attenuated for firms located in countries with an underdeveloped legal base and rule of law, strong barriers to trade, or underdeveloped financial markets (Jory and Ngo, 2014), as the state then substitutes for a poorly developed economic environment. Zhou et al. (2015) highlight the beneficial effects of political connections in SOEs and find that takeover announcements of Chinese target SOEs yield higher bidder announcement returns than transactions involving privately-held target firms. When the acquiring firm is an SOE, the long-term stock and operating performance are also significantly higher than for privately held acquirers. Overall, the ultimate effect of political connections depends on the strength and development of the

legal system, with political influence positively affecting short and long run performance in countries with weaker legal systems, but negatively affecting performance in countries with stronger institutions.

Table 14: Political Economics

This table shows studies on political economy in M&As. *Legend:* SRS (Short-run stock returns), LRS (Long-run stock returns), LRO (Long-run operating performance); CARs (Cumulative Abnormal Returns), BHARs (Buy-and-Hold Returns), CTARs (Calendar Time Abnormal Returns), CTPRs (Calendar Time Portfolio Regression); S (Significant), NS (Not Significant), ROA (Return on Assets).

Paper	Return type, event window	Sample size, country, and period	Performance measure	Effect on perf.	Results
Zhou et al. (2012)	SRS, [-2,+2]	825 completed deals, Chinese listed acquiring SOEs, 1994-2008	CARs	Negative for acquirer, positive for target	Private acquirers earn 0.87%, state-owned acquirers earn NS returns. Private targets earn 0.67%, state-owned targets earn 1.36%.
	LRS and LRO, 2 years		LRS: BHARs LRO: industry-adjusted operating cash flow return	Positive	Private acquirers earn 16.91%, state-owned acquirers earn 24.59%.
Brockman et al. (2013)	LRS and LRO, 3 years	509 global deals, public acquirers,1993-2004	LRS: BHARs LRO: industry-adjusted ROA	Depends on the legal system	Politically connected acquirers earn 15% higher (20% lower) BHARs in countries with strong (weak) legal systems or low (high) corruption levels. Change in ROA is -2.9% for politically connected acquirers in countries with strong legal systems relative to unconnected firms.
Dinc and Erel (2013)	No event study	415 bids, West-EU public acquirers and targets, 1997-2006	Bid premium	Negative for acquirer, positive for target	Bid premium: 43.60% for opposed bids, 33.02% for supported bids (difference is NS).
Jory and Ngo (2014)	SRS, [-3,+3]	186 acquisitions of state-owned firms, public US acquirers, foreign targets, 1987-2009	CARs	Negative	Acquirer CARs decrease from -0.83% to -1.16% over [-3,+3] if the target is state-owned.
	LRO, 3 years		ROA		Acquirer ROA decreases from 6.60% to 6.20% for a state-owned target to a lower post-announcement ROA level that is 7.8% lower than that of non-SOE bidders.

5.14 Means of payment and sources of financing

The literature on the means of payment distinguishes between cash, equity, and mixed offers. Overall, theory suggests that equity-financed deals should earn significantly lower returns relative to cash-financed deals, as the fact that management opts for equity-financing hints to the market that the firm's stock is overvalued (Myers and Majluf, 1984; Loughran and Vijh, 1997; Mitchell and Stafford, 2000). Using a sample of announced but

later withdrawn stock-financed deals, Savor and Lu (2009) show that stock-financed deals are not necessarily bad for shareholders, as bidders' long-term shareholders are still better off in a stock deal than they would have been if the firm did not pursue the deal at all. Martynova, Oosting and Renneboog (2007) report that the excess long term operating performance (relative to a matched sample of peer companies) increased by 1% measured over three years after the announcement and relative to the pre-announcement performance for cash offers, and decreased by 1.2% and 1.9% for all-equity and mixed offers, respectively. Still, the difference in excess operating performance among the different type of offers is not statistically different from zero. Then again, Fu, Lin, and Officer (2013) find evidence that overvalued acquirers using stock as means of payment do significantly overpay for their targets and that these deals do not create value, resulting in much lower bidder announcement returns and long-run operating performance.

Although the means of payment (cash or equity) has been researched in depth, little attention has been given to the sources of these funds. Deals funded by cash resources can be based on either internally generated funds or externally generated funds such as bank debt, bonds, other forms of debt, or equity issues. Nevertheless, the limited amount of evidence shows consistent results. Bank or debt financing of M&As is generally received positively in the market, most likely because of the monitoring effect of banks and the disciplining effect of debt. Bharadwaj and Shivdasani (2003) suggest that bank debt signals certification of the transaction and monitoring of the acquiring firm, because they find that deals financed entirely by banks achieve highly positive announcement returns, especially when acquirers are performing poorly or are subject to information asymmetries. Martynova and Renneboog (2009) show that the decision on the offered means of payment (cash vs equity) does not coincide with the decision on how to finance the transaction, with the type of offer depending on how the transaction can be funded. They disentangle the decision on what to offer the target and how to fund the transaction: they distinguish between deals financed with internal funds, debt issues, equity issues, or combinations of equity and debt, and demonstrate that acquisitions financed partly or fully with equity perform worse than cash- or debt-financed deals. Internally-funded deals however underperform debt-financed deals, which they believe may be due to managerial empire-building motives in cash-rich firms. The majority of large cash-financed deals are financed using newly issued debt, as internal funds often do

not suffice, and such debt-financed deals outperform other sources of funding in terms of short-run returns. This finding indicates the importance of debt as a bonding mechanism which curbs management's discretion of cash flows. Building on these findings, the literature on acquirer leverage ratios unsurprisingly concludes that overleveraged (relative to the firm's target leverage ratio) acquiring firms are unlikely to take on more debt in order to pay (a part of) the acquisition with cash (Harford et al., 2009; Uysal, 2011). These deals by overleveraged firms are thus more likely to be financed with equity, resulting in lower returns. Overall, the evidence indicates that bank and other debt financing embeds a monitoring and disciplining mechanism which positively affects short-run merger returns and that the negative effect of equity financing arises from overvalued stock or overleveraged acquirers. Although there is evidence that cash-financed deals outperform equity-financed deals in the long run, long-run evidence on the source of financing is scarce.

Table 15: Method of Payment and Source of Financing

This table shows studies on the source of financing. *Legend:* SRS (Short-run stock returns), LRS (Long-run stock returns), LRO (Long-run operating performance); CARs (Cumulative Abnormal Returns), BHARs (Buy-and-Hold Returns), CTARs (Calendar Time Abnormal Returns), CTPRs (Calendar Time Portfolio Regression Returns); S (Significant), NS (Not Significant), ROA (Return on Assets).

Paper	Return type, event window	Sample size, country, and period	Perf. measure	Effect on perf.	Results
Bharadwaj and Shivdasani (2003)	SR, [-1,0] and [-1,+1]	115 cash tender offers, public US acquirers and targets, 1990-1996	CARs	Positive for bank/debt	Acquirer CARs are 2.08% over [-1,0] or 4% over [-1,+1] for bank-financed deals. -0.32% over [-1,0] for internally-financed deals, NS for [-1,+1].
Martynova et al. (2007)	LRO , 3 years	858 intra-European deals 1997-2001	(EBITDA - ΔWC)/ $BV_{assets,}$	NS	
Martynova and Renneboog (2009)	SR, [+2,+60]	1,361 acquisitions, public European acquirers European targets, 1993-2001	CARs	Positive for bank/debt, negative for equity	Acquirer CAR are -3.4%, for equity-financed deals, -3.9% for mixed debt-and-equity financed deals, 3% for debt-financed deals, -0.1% for cash-financed (internally funded) deals.
Savor and Lu (2009)	LRS, 3 years	1,773 deals, US public acquirers, 1978-2003	BHARs and CTPR	Positive if equity-financed	Acquirer BHARs (CTPR) are 20.7% (14.2%) higher for completed equity-financed deals relative to withdrawn deals.
Uysal (2011)	SR, [-1,+1]	7,814 completed deals, US public acquirers and US targets, 1990-2007	CARs	Positive	Acquirer CARs are 2.3% if acquirer is overleveraged, 1.7% if moderately leveraged.
	LRS, 5 years		CTPR	NS	
Fu et al. (2013)	SR, [-42, compl.]	2,062 completed deals, US public targets and acquirers, 1985-2006	CARs	Negative	Acquirer CARs are -17.45% if overvalued acquirer & stock-financed, NS if not overvalued or cash-financed
	LRO, 5 years		Ind.-adj. ROA		Acquirer ROA is -0.93 if overvalued acquirer & stock-financed, NS if not overvalued, 1.37 if cash-financed

5.15 Tobin's Q, historical performance, and merger waves

Evidence on the means of payment indicates that stock-financed deals perform worse than cash-financed deals as acquirers use their overvalued stock to finance the transaction, resulting in subsequent declines in performance. The question then remains as to whether deals by high Tobin's Q (market-to-book) acquirers perform worse than those by low Tobin's Q acquirers. Empirical evidence indicates that this is not likely the case. Lang, Stulz, and Walkling (1989) and Rau and Vermaelen (1998) report that post-acquisition performance is higher when well-performing (high Tobin's Q) firms acquire poorly-performing (low Tobin's Q) targets. Servaes (1991) argues that these targets are purchased at low prices and hence offer the most upside potential for value creation subsequent to restructuring. In fact, Heron and Lie (2002) even report that high Tobin's Q acquirers outperform their industry peers in terms of long-run operating performance prior to a takeover deal and continue to outperform after the deal.

Table 16: Historical Performance and Tobin's Q

This table shows studies on historical performance and Tobin's Q. *Legend:* SRS (Short-run stock returns), LRS (Long-run stock returns), LRO (Long-run operating performance); CARs (Cumulative Abnormal Returns), BHARs (Buy-and-Hold Returns), CTARs (Calendar Time Abnormal Returns), CTPRs (Calendar Time Portfolio Regression Returns); S (Significant), NS (Not Significant), ROA (Return on Assets), B/M (Book-to-Market).

Paper	Return type, event window	Sample size, country, and period	Perf. measure	Effect on perf.	Results
Bouwman et al. (2009)	SRS, [-1,+1]	2,944 deals, US listed acquirers, 1979-2002	CARs	Positive	Acquirer CARs are significantly higher in periods with high stock market valuation.
	LRS and LRO, two years		LRS: BHARs controlled for size and B/M; CTPRs LRO: abnormal return on operating income	Negative	Acquirer BHARs (CTPRs) are -11.32% (16.32%) in booming equity markets; -6.60% (32.40%) in neutral markets; and NS in falling markets. Abnormal return on operating income is 1.72% higher for declining-market deals than for booming-market deals.
Duchin and Schmidt (2013)	SRS, [-1,+1] and [-3,+3]	9,854 completed deals, US public acquirers, 1980-2009	CARs	NS	
	LRS and LRO, 2 years and 3 years		LRS: BHARs LRO: ROA, ind.-adj.	Negative	Acquirer BHARs are 4.65% to 6.25% lower for in-takeover-wave acquirers relative to out-of-wave acquirers. Acquirer ROA is 0.75% to 2.14% lower for in-wave takeovers relative to out-of-wave ones.

Booming stock markets have historically been associated with higher Tobin's Q ratios and increased M&A activity. Empirical evidence does indeed indicate that merger wave periods are associated with higher industry Tobin's Q ratios (Martynov and Renneboog,

2011a; Duchin and Schmidt, 2013; Harford, 2005) and higher short-run announcement returns. However, long-run evidence in Bouwman, Fuller, and Nain (2009) indicates that deals during such high-valuation markets earn lower long-term stock returns and lower operating performance. They find that this type of underperformance occurs mainly in firms who acquire other firms in the final stages of a merger wave and relate this to the managerial herding hypothesis in that late acquirers ignore their own private signals about the profitability of a merger and base their decisions on the actions of their predecessors. Duchin and Schmidt (2013) confirm that end-of-wave mergers perform worse in terms of long-term stock and operating performance and find that end-of-wave mergers are undertaken by firms with poor corporate governance (lower managerial equity-based compensation, low CEO ownership, and lack of block ownership).

5.16 Other dimensions

5.16.1 Cross-holdings

As the returns to acquiring firm shareholders tend to be negative or zero on average, Matvos and Ostrovsky (2008) question why shareholders do not oppose these mergers and hence avoid transactions not generating any value. They reveal that institutional shareholders often hold large stakes in both the bidder and target firm, such that the losses from the acquirers' announcement returns are offset with the gains from the targets'. Harford, Jenter, and Li (2011), in contrast, argue against this by showing that the stakes of cross-owners in target firms are not sufficiently large to compensate losses in the acquiring firms and that the lack of shareholder opposition to value-destroying mergers remains a puzzle.

5.16.2 Target acquisitiveness

Phalippou et al. (2014) consider the target's acquisitiveness in a sample of public US acquiring and target firms, defining acquisitiveness based on the number of acquisitions a target has made over the previous three years. They find that the acquirer's announcement returns are significantly lower for deals involving more acquisitive targets relative to non-acquisitive target firms and that these effects are responsible for half of the overall negative announcement returns. They argue that acquirers' motivation to engage in such value-destroying acquisitions often is of a defensive nature: acquirers

acquire in order to not be acquired themselves. However, they find no significant relationship for long-term stock returns.

5.16.3 Corporate social responsibility (CSR)

When a firm engages in a takeover, its existing relations with its stakeholders such as employees, suppliers, or customers are often under pressure. Deng et al. (2013) argue that by investing in CSR, the firm can incentivize stakeholders to contribute more resources and effort to its operations, as CSR investment is associated with a stronger reputation for remaining committed to implicit contracts such as job security promises or customer service continuation. Consequently, they find that acquirer shareholders benefit from mergers completed by firms investing more in CSR relative to low CSR acquirers, as the former earn higher long-run stock returns and have higher profitability. Aktas, de Bodt, and Cousin (2011) find that indirect investment in CSR is also rewarded by the market, as announcement returns are higher for firms acquiring targets with high levels of CSR.

5.16.4 Anti-takeover provisions

As firms that make value-destroying acquisitions are more likely to become a target in an M&A deal themselves (Mitchell and Lehn, 1990), the takeover market can act as a disciplinary mechanism to deter potential empire-building managers from reducing shareholder value through bad acquisitions. However, anti-takeover provisions (ATPs) in large firms can restrict the efficient functioning of the market for corporate control by hindering or considerably delaying the acquisition process. This increases the costs of acquiring the firm and makes it less vulnerable to potential management-disciplining takeover bids. In other words, ATPs increase the scope for managerial entrenchment, which can lead to corporate decisions that are detrimental to shareholders as there is no serious threat to the management of losing de facto control over the corporation. There is strong evidence that a higher degree of entrenchment is related to lower returns and lower firm value (Franks, Mayer, and Renneboog, 2001; Gompers, Ishii, and Metrick, 2003; Bebchuk et al., 2009; Bebchuk and Cohen, 2005; Cremers and Nair, 2005).[19] While

[19] These studies are not further discussed here as they mainly look at the effects of the level of or change in takeover provisions on firm performance, not considering returns surrounding takeover deals or post-merger deal performance.

these studies look at the effect of entrenchment (including ATPs) on overall firm performance, several other studies relate ATPs to M&A returns. Masulis et al. (2007) report that acquiring firms with more ATPs have lower announcement returns, even when controlling for product market competition, leverage, CEO equity-based compensation, institutional ownership, and board composition. Harford et al. (2008) confirm this finding and add that managers of firms with strong ATPs and excess cash (who may be most prone to empire building) have very high capital expenditures and spend their cash on poor acquisitions. Harford, Humphery-Jenner, and Powell (2012) investigate the sources of value-destruction in deals by entrenched managers. They find that entrenched managers avoid making all-equity offers to public firms when a large blockholder is present in the target firm and to private firms even when such deals are value-creating, because such transactions would erode their control position (and reduce the degree of entrenchment). In addition, entrenched managers overpay and tend to choose targets with lower synergies, all resulting in lower short-run announcement return and post-merger operating performance. Humphery-Jenner and Powell (2011) take an alternative approach: they examine a sample of large acquiring firms in Australia, where ATPs are prohibited. They find that these large acquirers earn positive abnormal announcement returns and that post-takeover operating performance increases with acquirer size. As studies based on similar samples of large US firms on average have negative announcement returns and long-term operating performance, they conclude that the absence of ATPs can promote value-enhancing takeover deals. In sum, these studies indicate that antitakeover provisions in large firms restrict the disciplining mechanism of the takeover market, resulting in more value-destroying acquisitions, lower overall firm value, and lower merger announcement returns. The absence of these provisions then increases both announcement returns and long-run operating performance.

5.16.5 Takeover Strategy (Toeholds)

A large literature on toeholds shows that bidder announcement returns are on average higher (or less negative) if the bidder owns a toehold in the target prior to making a takeover offer. Toeholds reduce the target's bargaining power as any increase in the target's share price will also partly accrue to the bidder with a toehold, enabling this bidder to purchase control in the target more cheaply (at a lower premium). Betton,

Eckbo, and Thorburn (2008) for example find that three-day CARs are -1.2% for non-toehold bidders, relative to -0.15% for toehold bidders. Despite these apparent benefits, toeholds are relatively rare in practice. Betton, Eckbo, and Thorburn (2009) show that the presence of rejection costs creates a toehold threshold below which the optimal toehold is zero, making it optimal for some bidders to approach the target without a toehold.

Despite the large literature on toehold bidding, few papers have investigated the long-run consequences for bidding firms using a toehold strategy. Vansteenkiste (2018) investigates a two-stage acquisition strategy, in which bidding firms obtain a sizeable minority stake in the target before obtaining majority control. Although this is a different takeover strategy from a traditional toehold (both in terms of the size of the stake and the timing of the minority acquisition), two-stage deals result in 7.1% higher long-run ROA relative to one-stage deals (in which the bidder did not initially purchase a minority stake in the target). These findings suggest that a two-stage acquisition strategy can enable bidders to make better (ultimate) takeover decisions; the second-stage of the takeover is also more likely to be completed, is completed faster, and the targets are less likely to be divested over the long run.

Table 17: Other Explanations

This table shows studies on cross-holdings, target acquisitiveness, CSR, and anti-takeover provisions. *Legend:* SRS (Short-run stock returns), LRS (Long-run stock returns), LRO (Long-run operating performance); CARs (Cumulative Abnormal Returns), BHARs (Buy-and-Hold Returns), CTARs (Calendar Time Abnormal Returns), CTPRs (Calendar Time Portfolio Regression Returns); S (Significant), NS (Not Significant), M/B (Market-to-Book).

Paper	Return type, event window	Sample size, country, and period	Performance measure	Effect on performance	Results
Panel A. Cross-Holdings					
Matvos and Ostrovsky (2008)	SRS, [-5,+5}	2,529 completed deals, US public targets, 1981-2003	CARs	Positive	Acquirer returns increase by 1.33% after adjusting for cross-ownership.
Panel B. Target Acquisitiveness					
Phalippou et al. (2014)	SRS, [-1,+1]	4,286 completed deals, US public acquirers and targets, 1985-2010	CARs	Negative	Acquirer CARs are -0.51% for non-acquisitive targets, -1.67% for targets having made one acquisition over the past 3 years, -6.22% for targets that made 5 or more acquisitions over the past 3 years.
	LRS, 3 years		CTARs	NS	
Panel C. Corporate Social Responsibility (CSR)					
Aktas et al. (2011)	SRS, [-1,+1]	106 completed deals, public acquirers and targets, 1997-2007	CARs	Positive	Acquirer CARs are 0.17% for high CSR targets, -2.53% for low CSR targets. Increase in CSR target rating of one unit leads to an increase in acquirer CAR of 0.9%.
Deng et al. (2013)	SRS, [-1,+1] and [-5,+5]	1,556 completed mergers (214 for LR sample), public US acquirers, 1992-2007	CARs, market model	Positive	Acquirer returns are insignificant for high CSR acquirers and are -0.49% for low CSR acquirers over [-1,+1]. Acquirer returns are insignificant for high CSR targets and are -0.67% for low CSR targets over [-5,+5].
	LRS and LRO, 1 to 3 years		LRS: CTPRs using four-factor model LRO: change in cash flow, controlled for adjusted CSR, size, leverage, M/B, industry, and year.	Positive	Acquirer CTPRs are NS for portfolios of low CSR acquirers, and 0.003% for high CSR acquirers in y2 and y3.

Table 17 Cont'd: Panel D. Anti-Takeover Provisions (ATP)					
Masulis, et al. (2007)	SRS, [-2,+2]	3,333 completed deals, US public acquirers, 1990-2003	CARs	Negative	Acquirer CARs are 0.44% for low ATP, and -0.30% for high ATP.
Humphery-Jenner and Powell (2011)	SRS, [-1,+1]	1,900 completed acquisitions, large Australian acquirers, 1993-2007	CARs and DCARs	Negative	Acquirer CARs are 0.56% for large acquirers, 3.13% for small acquirers.
	LRO, 3 years		ROA, industry-adjusted, controlled for size and bidder characteristics.	Negative	Acquirer ROA increases with 2.648% for a unit increase in relative deal size.
Harford et al. (2012)	SRS, [-1,+1]	3,935 completed deals, US public acquirers, 1990-2005	CARs	Negative	Acquirer CARs are -0.036% if management is entrenched, NS if not entrenched.
	LRO, 3 years		ROA, industry-adjusted		Acquirer ROA is -1.25% if management is entrenched, NS if not entrenched.
Panel E. Takeover Strategy					
Vansteenkiste (2018)	SRS, [-1,+1]	7,552 deal announcements, global public acquirers and targets, 1990-2015	CARs	NS for acq., negative for target	Acquirer CARs are NS. Target CARs are 10.4% in one-stage deals and 4.1% in two-stage deals (difference is statistically significant).
	LRO, 3 years		ROA, ind.-adj.	Positive	Acquirer ROA is 7.1% higher in two-stage deals relative to one-stage deals.

6. Suggestions for future research

Despite the hundreds of academic studies written about M&As, the majority of the evidence on whether these deals create value is based on the bidder's, target's, or combined firm's short-run stock market returns around the merger announcement. Short-run announcement returns capture the market's expectations regarding the deal's performance, which may however deviate from the actual long-term realizations. Evidence based on short-run returns can thus not always be generalized to the deal's long-run performance. Despite this shortcoming, there is little consistent evidence regarding the drivers of a takeover's long-run stock and operating performance.

A reason that is often indicated to motivate the use of short-run returns is that long-run performance measures suffer from a number of econometric issues, such as the assumption of independently distributed observations and the choice of a correct expected returns benchmark. However, a considerable number of studies have taken into account these issues by introducing additional controls, adjusted standard errors, calendar time measures, and portfolio approaches, which together significantly reduce the likelihood of biased results.

Until recently, only the means of payment has been identified as a consistent predictor of long-term performance. Although many papers have attempted to identify other transaction characteristics that predict deal performance, analyses of long-run stock and operating performance are still scarce. In fact, our study of the literature has only indicated the acquirer's acquisitiveness, performance- and equity-based compensation contracts, specific board characteristics (board busyness below a certain threshold, female directors), cross-country differences in governance standards, and product market overlap to be relatively consistent predictors of long-run deal performance.

We therefore propose some questions that may be addressed in future takeover research agendas. First, although CEO overconfidence appears to be the main explanation for serial acquirers' declining performance, alternative explanations such as a decreasing investment opportunity set or CEO bidding persistence could provide deeper insights into the mechanism driving this underperformance. In addition, much of the evidence on this topic is based on US samples and may not always be generalizable to other countries.

Second, worldwide evidence on the impact of professional connections and networks on takeovers is mixed – even within countries - or often insignificant. This may

imply that the positive – connected board members may have increased access to private information - and negative – connections may act as substitutes for active information collection and may proxy for managerial hubris - effects of networks on deal performance offset each other to some extent. Future research could address the open question as to what factors determine whether the beneficial or the detrimental effects of managers', directors', and firms' connections dominate, and in what setting.

Third, close to 50% of M&As are cross-border deals in which country- and firm-level cultures and traditions may clash, such that resistance by employees and other stakeholders may slow down the post-merger integration process. Evidence on culture clashes in M&As in the finance and economics literature is scarce, despite a strong focus on the post-merger process in the strategy and management literature. Future research could thus use the insights from the studies in the latter fields to investigate the stock and operating performance implications of such cross-border deal frictions.

Fourth, there is some evidence that the link between family ownership and M&A performance varies considerably across countries, suggesting that it may depend strongly on the legal and institutional environment. However, little to no empirical studies show long-run evidence on merger performance by family firms, providing scope for future research. In addition, there is also little long-run evidence on how geographic proximity or sources of financing affect deal performance, despite consistent long-run evidence on the means of payment.

Fifth, a number of studies find that acquirers of distressed target assets experience significant gains in the short run, indicating that bidders benefit from purchasing distressed targets at a discount. However, future research could focus more on the returns to target shareholders and long-run performance. It may be interesting to further investigate this issue in the context of post-merger restructuring and divestitures.

Finally, the literature has indicated a number of other dimensions that may explain the on average negative long-run performance of M&As, including the effects of institutional cross-holdings, the target's acquisitiveness, corporate social responsibility, and anti-takeover provisions. However, as before, there is little long-run stock or operating performance evidence for these dimensions.

7. Conclusion

Despite the vast amounts of money and resources spent on takeovers, many academic studies have shown that the bidding firms' shareholders either lose out at takeovers or are expected to gain on average very little. Abnormal stock returns at the announcement of the merger are on average close to zero, and long-run operating and stock performance are often significantly negative, implying that the anticipated deal synergies are frequently overestimated. A great number of studies have thus attempted to identify the variables that determine the success of a takeover in terms of shareholder returns and firm performance.

Despite the large literature on mergers and acquisitions, there have been relatively few unambiguous and robust conclusions. Most of the M&A research has taken a short-term view using event studies that show the short-run wealth effects capturing the expectations of the takeovers' success or failure. However, expectations regarding the deal's performance can deviate from the long-term realizations. As the firm restructures and integrates the target firm in its own operations, the market corrects its initial short-term predicted returns. Although long-term operating and stock performance measures have their own drawbacks relative to short-run announcement returns, they should capture the ultimate success of a takeover.

Whereas early evidence only indicated the deal's means of payment (cash vs equity) as a consistent predictor of long-term performance (with cash related to positive and equity to negative performance), more recent papers have attempted to explain M&A performance by looking at a wide range of firm, deal, management, board, or country characteristics. In this paper, we compile the evidence on M&A success factors and provide a broader answer to the question: What leads to success or failure in M&As?

Our study of the literature has identified a number of transaction characteristics that prove to be relatively consistent predictors of long-run deal performance. First, serial acquirers' stock and operating performance declines deal by deal as the firm increases its acquisitiveness. Most evidence indicates CEO overconfidence as the main driver of this underperformance, because overconfident CEO's overestimate their ability to select profitable target firms and to create synergy gains. However, acquisition or operating experience in the target's industry can alleviate some of the negative effects.

Second, evidence on CEO performance- and equity-based compensation contracts confirms the agency theory predictions in that such contracts deter managers from

making value-destroying acquisitions through the negative effect on their own long-run wealth, as long as the performance criteria are not directly related to firm growth through acquisitions. Moreover, not only equity-based compensation can provide an incentive to avoid value-destroying acquisitions, a higher likelihood of receiving fines or even being fired also helps align managers' and shareholders' interests.

Third, certain characteristics of the board of directors can help managers make better takeover decisions. The empirical evidence indicates that board members with multiple directorships are more reputable and have better monitoring and advisory skills through their increased access to information. This results in more value-generating M&As and increased long-term firm performance, as long as the number of outside directorships remains limited (and 'board busyness' is avoided). Moreover, target CEOs' expertise and experience can increase deal performance, and female executives or directors are less likely to overbid and make value-destroying acquisitions as these are less likely to exhibit overconfident behaviour.

Fourth, cross-country differences in corporate governance standards and investor protection can also be a source of deal synergies. For example, bidder shareholders benefit when the bidder's corporate governance standards are stricter (more shareholder-oriented) than the target's, as this facilitates the bidder's ability to restructure the target and shifts the focus to shareholder value creation. Such spillovers in governance standards increase short- and long-run returns to bidder and target shareholders across countries around the world.

Fifth, related or focused acquisitions outperform unrelated or diversifying acquisitions both in the short run and in the long run, as acquirers in the former case are more likely to have the skills and resources required to operate and integrate the target firm. These findings hold regardless of whether relatedness is measured by means of industry classifications, product market overlap, strategic compatibility, complementariness in the supply chain, or technological overlap.

Many more dimensions have been identified in the literature as potential determinants of deal performance and success. However, long-run evidence for these variables is scarce, providing scope for future research. We thus also propose a future research agenda, focusing on what factors determine a takeover's long-run stock and operating performance.

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Chapter 2

Creditor rights, claims enforcement, and bond performance in mergers and acquisitions

with Luc Renneboog and Peter Szilagyi

Abstract – This paper shows that country-level differences in creditor protection affect bond performance around cross-border M&A announcements. Using Eurobonds and a global sample of 1,100 cross-border M&As, we find that the bondholders of bidding firms respond more positively to deals that expose their firm to a jurisdiction with stronger creditor rights and more efficient claims enforcement through courts. Positive creditor protection spillovers are enhanced by now-global jurisdictional cooperation in multinational insolvencies and creditors' ability to do insolvency arbitrage. The spillover effects we observe are stronger for firms with higher asset risk, longer maturity bonds, and a higher likelihood of financial distress.

Keywords: Bondholder Value; Cross-Border Mergers and Acquisitions (M&As); Creditor Rights; Legal Enforcement; Event Study; Eurobonds.

JEL Classification: G34, G32, G12, G14.

1. Introduction

The market for corporate control has become increasingly global in the last two decades, with cross-border mergers and acquisitions (M&As) now accounting for more than a third of M&A activity worldwide (Erel et al., 2012) and exceeding domestic activity in value terms (Albuquerque et al., 2014). One important aspect of this trend are the spillovers in country-level regulatory conditions that cross-border deals facilitate. Countries differ considerably in their governance structures, accounting standards and disclosure practices, and protect investors to varying degrees. For individual firms, country-level regulatory conditions have been shown to affect both performance (Boubakri et al., 2015; La Porta et al., 2000) and governance and disclosure quality (Doidge et al., 2007). The same conditions have at the same time been shown to spill across borders through cross-border M&As, affecting both bidder and target stock returns (Martynova and Renneboog, 2008), the takeover premium demanded by target shareholders (Starks and Wei, 2013), and even the valuation of targets' rival firms (Albuquerque et al., 2014) and of entire industries (Servaes and Tamayo, 2014).

If spillovers of country-level regulatory conditions produce stock valuation effects in cross-border M&As, it is reasonable to assume that they can also affect bond valuation. Previous studies show that the performance and even design of corporate bonds are significantly affected by the quality of regulatory protection adjudicated to creditors (Choi et al., 2010; Francis et al., 2010; Miller and Reisel, 2012; Qi and Wald, 2008; Sevic and Brawn, 2015). La Porta et al. (2000) argue that there are limitations to functional creditor protection spillovers as a result of cross-border M&As, because corporate assets remain under the jurisdiction of the country where they are physically located. However, exposure to a more creditor-friendly jurisdiction should still have an effect on managerial risk-taking. Moreover, complex multinational insolvencies have now inspired jurisdictional cooperation among national authorities worldwide, which not only enhances the threat and implications of insolvency proceedings if the firm goes into financial distress, but potentially allows creditors to engage in insolvency arbitrage.[20]

[20] Choi et al. (2010) examine how bonds perform in cross-border bank M&As using a small sample of 147 deals. The authors find that bank bondholders perceive these deals as risk-increasing activities, and that yield spread changes are affected by country differences in the regulatory banking environment. It is important to note that this study is different from our paper in terms of both focus and approach. Firstly, M&As within the banking industry are subject to very different regulatory considerations such as country-level bank regulation and supervision designed to prevent bank insolvencies. Secondly, Choi et al. (2010) explicitly exclude Eurobonds from their analysis and focus on domestic bonds. The use of Eurobonds is

This paper examines the bond performance of non-financial firms in cross-border M&As, using a sample of 1,100 deals involving firms with outstanding Eurobonds in the period 2000-2013. Our sample is among the largest studied in any bond market event study on M&As.[21] Importantly, Eurobonds are more appropriate to use than domestic bonds for international bond market event studies. Firstly, the international Eurobond market is significantly more liquid and standardized than often immature domestic bond markets subject to local capital market regulation. Secondly, the firm-level effects of changes in regulatory conditions are better captured using Eurobonds, which are typically unsecured bearer bonds ill-protected by covenants, and their governing law provisions in the bond indenture prevent their holders from doing insolvency arbitrage themselves.[22] The use of Eurobonds limits the scope of our analysis to relatively large and creditworthy firms because, like domestic corporate bond markets outside the US, the Eurobond market has low tolerance for public bonds by junk-grade issuers.[23]

Our empirical results indicate that bond performance in cross-border M&As is indeed affected by country-level differences in creditor protection. The bondholders of bidding firms tend to respond negatively to cross-border deals, but the abnormal bond returns are systematically more positive when the deal exposes the firm to a jurisdiction with stronger creditor rights and better enforcement of creditor claims through courts. Subsample analysis further reveals that the positive creditor protection spillovers are

more appropriate for international bond event studies and a crucial part of our identification strategy. Thirdly, Choi et al. (2010) calculate abnormal bond yields using the mean-adjusted model rather than a matching portfolio method, against the recommendations of Bessembinder et al. (2009).

[21] Bessembinder et al. (2009) find that bond market event studies rarely exceed 300 events with a median sample of 67. They show that a large sample is critical for the power of non-parametric tests. For example, the probability of detecting a shock of 10 basis points (bp) is less than 50% for 50 observations, but 100% for 500 observations. To the best of our knowledge, the largest studies focusing on M&As remain those of Billett et al. (2004) and Pereira da Silva et al. (2015) with 940 and 938 deals, respectively.

[22] Eurobonds are typically issued in bearer form and large issue sizes, and exempt from withholding tax if exchange-distributed. These features attract huge demand from a very diverse set of mostly institutional investors, which makes their market competitive, efficient, and liquid with a relatively low risk of price anomalies. Eurobonds tend to be unsecured and carry few covenants, because their investors often prefer to stay anonymous and find recovering collateral and enforcing covenants too costly. Eurobonds are typically governed by English common law and listed on the Luxembourg Stock Exchange. The Luxembourg Stock Exchange was among the first to relax Eurobond issuing procedures in 1990, offering low fees, no withholding tax, and a quick approval of new listings. The bond's governing law is specified in the bond contract, and is typically negotiated between the underwriter and the issuer. English common law is generally preferred because it permits collective action clauses that allow for timely and orderly renegotiations if the issuer defaults. English law also allows greater scope for the bond trustee to negotiate with the issuer, which sits well with Eurobond investors who wish to remain anonymous.

[23] The Eurobonds in our sample are all investment-grade and tend to have large issue sizes, with the average issue size at €693 million. Domestic bond markets outside the US are also thin in junk-grade issues, however.

stronger for firms that have higher asset volatility, longer maturity bonds, and a higher likelihood of financial distress. We find no evidence of negative spillovers when the firm is exposed to a country with inferior creditor protection, as creditors remain protected by the jurisdictions they already have access to. The sensitivity of Eurobond holders to positive spillovers implies that even relatively marginal new exposures affect the agency costs of debt at the firm-level, benefiting all creditor classes regardless of their seniority and ability to engage in legal arbitrage.

Our paper contributes to the growing literature on the economic impact and implications of cross-border M&As. The international business literature offers ample evidence on many aspects of these deals, including their impact on employee welfare (Clougherty et al., 2014), level of value creation (Aybar and Ficici, 2009; Aybar and Thanakijsombat, 2015; Doukas and Kan, 2006; Jory and Ngo, 2014; Lebedev et al., 2015; Li et al., 2016; Shimizu et al., 2004), and relationship with national culture (Ahern et al., 2015), legal systems (Jandik and Kali, 2009) and labor market regulations (Alimov, 2015). We add to this discussion by highlighting the substantial regulatory and jurisdictional complexities that cross-border M&As generate. The complexities with respect to cross-border insolvency are seldom discussed outside the legal literature but, as our results indicate, they can potentially affect firm behavior and risk-taking through altering creditors' relative bargaining position.

2. Background and Hypotheses

The comparative corporate governance literature observes a lot of variation in the extent to which countries accommodate creditor interests against the interests of the firm's other stakeholders. From the perspective of bondholders, notable features that set countries apart are the quality and enforcement of regulatory protection adjudicated to creditors, the extent to which minority investors are protected against expropriation by management and majority shareholders, and the overall quality of the regulatory system. An example of country-level differences in creditor protection is given by Davydenko and Franks (2008). In France, insolvency proceedings are administered by courts, creditor claims are subordinated to government and employee claims, and maintaining the firm as a going concern is preferred. Thus, creditors can neither reliably count on recovering their claims, nor control the timing and method of realizing collateral. In the UK, creditors enjoy significant control in recovering claims and realizing collateral, and have strong

incentives to race against management and each other to do so. A creditor with a floating charge can sell the entire firm without having to consider other claimants, and even unsecured creditors have some liquidation rights.

La Porta et al. (2000) claim that there are limitations to functional spillovers in country-level creditor protection in internationally diversified firms, because corporate assets remain under the jurisdiction of the country where they are physically located. This territoriality principle is often referred to as the "grab rule", where each local court takes the assets located in its geographic jurisdiction and distributes them only to those creditors that go to court to present their claims. Nonetheless, the jurisdictional exposures created by international diversification should still bring about non-trivial benefits for creditors. Firstly, exposure to a more creditor-friendly jurisdiction can subject management to an increased threat of insolvency proceedings and more serious consequences if the firm goes into financial distress. This effect should occur even if the firm is already present in that regime, because the more assets are up for grabs, the greater the incentives of creditors to pursue them. Secondly, it is not actually certain that a firm's assets end up under the jurisdiction of the country where they are physically located. Multinational insolvencies have inspired a worldwide wave of bankruptcy law reforms to enhance cooperation among national authorities. A key template for these reforms is the Model Law on Cross-Border Insolvency issued by the United Nations Commission for International Trade Law (UNCITRAL) in 1997. The Model Law puts one jurisdiction in charge of insolvency proceedings on a worldwide basis, thereby reducing legal uncertainty, preventing firms from concealing or transferring assets, and ensuring that all creditors are treated fairly. The main proceeding is opened in the jurisdiction of the firm's center of main interests (COMI), and any concurrent proceedings are recognized and cooperate as secondary or non-main proceedings. The Model Law, which proposes what is a modified form of the universality principle rather than territoriality, has formally been enacted by 43 countries, and similar frameworks are in place in many others including in the European Union (EU).[24]

[24] The Model Law was drafted using previous cross-border insolvency agreements, including the Nordic Bankruptcy Convention of 1933, the Montevideo and Bustamente Conventions in force in much of South America, and the Convention on Insolvency Proceedings of the European Union, later enacted as the European Insolvency Regulation (EIR) of 2000. The US introduced the Model Law into the US Bankruptcy Code as Chapter 15 in 2005. However, it had already applied a modified form of universality, whereby it claimed worldwide jurisdiction over US-incorporated firms, but was prepared to cooperate with and possibly recognize the rulings of proceedings abroad to prevent the unequal treatment of foreign creditors.

One notable aspect of such jurisdictional cooperation is that in addition to mitigating legal uncertainties and the unequal treatment of foreign creditors, it may actually create scope for creditors to engage in insolvency arbitrage. This phenomenon is known as jurisdiction (or forum) shopping: if a firm operating in multiple jurisdictions becomes financially distressed, creditors may race against management and each other to litigate in a creditor-friendly jurisdiction to strengthen their legal position and obtain maximum satisfaction for their claims. The scope for insolvency arbitrage is clearly increased by cross-border M&As, resulting in a functional spillover of creditor protection across countries.[25]

How jurisdictional cooperation can encourage insolvency arbitrage is best demonstrated by the EU's European Insolvency Regulation (EIR) introduced in 2000 and amended in 2015.[26] The EIR identifies a main proceeding based on the insolvent firm's COMI, but also allows creditors, wherever domiciled in the EU, to initiate non-main proceedings in any Member State where the firm has an establishment. For example, it allows French creditors to enforce their claims in the UK, even if the firm's COMI is in a third country. The EIR also extends the same right to national taxation and social security authorities, eliminating the traditional rule against the enforcement of foreign revenue debts. It defines an establishment fairly leniently, such that it may even encompass a commercial agent of the firm.

Importantly, jurisdiction shopping can also be encouraged by ambiguities as to where a firm's COMI actually is. COMI is typically defined as the firm's country of incorporation in common law countries (incorporation doctrine), and the country where the firm's headquarters are in civil law countries (real seat doctrine). In practice, real seat countries cannot exploit ambiguities in COMI to claim jurisdiction over insolvency cases, but incorporation countries can. This has led UK administrators to shift a number of insolvency cases from Continental Europe to the UK, including those of ISA Daisytek, MG

[25] Jurisdiction shopping by creditors is a well-known phenomenon even within the US, and explains the popularity of specialized bankruptcy courts in Delaware and New York. While the US Bankruptcy code is federal, state courts enjoy considerable judicial discretion and protect creditor interests to varying degrees. Firms sometimes file for Chapter 11 bankruptcy preemptively to give them leverage against creditors. When they do not, however, creditors can submit an insolvency filing against the firm in any state in which it has an insolvent affiliate (BIS, 2002).

[26] Council Regulation (EC) No. 1346/2000 of 29 May 2000, repealed by Regulation No. 2015/848 of 20 May 2015.

Rover, Enron Directo, Deutsche Nickel and Interedil.[27] That creditors can do the same was demonstrated in 2004 by the Bank of America, which preemptively got Eurofood, the Irish subsidiary of Parmalat, under Irish jurisdiction despite a legal challenge by Italy before the European Court of Justice.

It is important to recognize that the mere threat of insolvency arbitrage by creditors should put added pressure on management to avoid excessive risk-taking, benefiting all creditor classes whether or not arbitrage is feasible to them. Some creditors may not want to access other jurisdictions because they have security rights (rights *in rem*) over assets in a particular country.[28] Eurobond holders are prevented from arbitrage altogether, because Eurobonds are issued outside any jurisdiction, with a governing law specified in the bond indenture for the event of legal conflicts. Nonetheless, large firms should always have diligent creditors with the incentive to exploit disparate creditor protection conditions if they go into financial distress. Eurobond holders should be highly sensitive to the position and bargaining power of these diligent creditors *vis-à-vis* the firm – and all the more so because the threat of insolvency litigation is less credible on their part, since they hold unsecured bearer claims ill-protected by covenants, and tend to have low recovery rates if the firm is liquidated.

Given the above discussion we expect that cross-border M&As generate significant positive spillovers in country-level creditor protection, such that bondholders respond more positively to deals that expose their firm to a jurisdiction with stronger regulatory protection adjudicated to creditors.

The two key aspects of creditor protection are the quality of creditor rights in insolvency proceedings, and the efficiency of local courts in enforcing creditor claims. On one hand, the quality of creditor rights affects creditors' bargaining power in insolvency proceedings. On the other, well-functioning courts and strong legal enforcement can

[27] Becht et al. (2008) discuss how Continental European firms reincorporate in the UK voluntarily to become subject to UK common law. This trend of cross-country incorporation mobility has been reinforced by a series of rulings by the European Court of Justice, which dictates that firms are free to select their country of incorporation within the EU independently of their real seat. The fact that real seat countries cannot export their law was demonstrated by the 2011 insolvency case of Mediasucre International, a French firm. Mediasucre's French liquidator sought but was refused to include Rastelli Davide, an Italian firm intermixed with Mediasucre, in Mediasucre's insolvency proceedings opened in France.

[28] Rights *in rem* remain subject to the jurisdiction of the country where the assets are located and are strongly protected by the EIR. This should guarantee a relatively high percentage recovery to the creditors that hold them.

effectively resolve disputes between corporate constituencies, and may even substitute for weaker regulation (La Porta et al., 1998).

H1 Cross-border M&As that expose the firm to a jurisdiction with stronger creditor rights generate higher abnormal bond returns around the deal announcement.

H2 Cross-border M&As that expose the firm to a jurisdiction with better claims enforcement generate higher abnormal bond returns around the deal announcement.

Two further factors that are likely to affect the country-level protection enjoyed by creditors are the extent to which minority shareholders are protected against expropriation by management and majority shareholders, and the overall quality of the regulatory environment. These factors do not drive creditors' relative bargaining position *per se* but affect all outside corporate constituencies. Firstly, strong shareholder rights can harm creditors due to conflicts of interest with respect to the firm's level of risk-taking (Chava et al., 2009). However, the strong protection of minority shareholders can actually help protect creditor interests, if it prevents expropriation of assets from the firm that serve as collateral towards creditor claims (Djankov et al., 2008; Miller and Reisel, 2012). Secondly, the efficient and complete enforcement of creditor rights depends not only on well-functioning courts, but on the overall quality of the regulatory system including the quality of property rights, control of corruption and fraud, and the incidence of crime and violence.

H3 Cross-border M&As that expose the firm to a jurisdiction with stronger minority shareholder protection generate higher abnormal bond returns around the deal announcement.

H4 Cross-border M&As that expose the firm to a jurisdiction with better rule of law generate higher abnormal bond returns around the deal announcements.

3. Sample Selection, Methodology, and Descriptive Statistics

3.1 Sample Selection and Methodology

We first construct our bond sample by retrieving Eurobonds with time series data from Thomson Reuters Eikon. From the initial sample we exclude bonds with (i) special features that have strong pricing implications (e.g. options) and (ii) missing or erroneous prices and credit ratings. This search yields 1,703 Eurobonds issued by 532 firms. We

then use these bonds to create pricing benchmark portfolios segmented by currency, credit rating, and duration as described below. Robust pricing benchmarks can only be created for investment-grade euro, US dollar and pound sterling Eurobonds for the period 2000-2013. The final sample of bonds that can be matched with corresponding benchmarks includes 1,194 Eurobonds issued by 350 firms.

We then search the SDC, Zephyr and CapitalIQ databases for M&As involving the issuers of the Eurobonds, excluding (i) acquisitions of assets and minority interests and (ii) transactions involving banks, insurance companies and other financial firms (SIC codes 6000-6900). Our final M&A sample comprises 1,100 cross-border deals involving 194 bidding firms with outstanding Eurobonds in the period 2000-2013, of which 26 deals also involve Eurobond-issuing targets.

The geographical distribution of the full sample is provided in Appendix 1. The bidding firms, all Eurobond issuers, are most often domiciled in France (295 deals), the UK (194), the US (129), the Netherlands (105) and Sweden (101). The target firm countries are more widely dispersed, with most targets domiciled in the US (215 deals), the UK (79), Germany (75), France (57), Brazil (52), Spain (52) and China (51).

Abnormal bond returns are defined as the sum of daily abnormal returns in the days [-5,+5] surrounding deal announcements. Previous studies tend to use monthly returns, but daily returns largely avoid confounding events and perform more accurately in parametric tests (Bessembinder et al., 2009). Ederington et al. (2015) propose standardizing bond returns by their estimated time series volatility, because bond characteristics such as term-to-maturity and credit rating can lead to heteroskedasticity in bond returns. For ease of interpretation we use unstandardized returns in the analysis, but our results are robust to the use of standardized returns and are available on request.

Daily abnormal bond returns are calculated using a matching portfolio method that outperforms other methods of return calculation (Bessembinder et al., 2009). Each firm with multiple bonds is treated as a value-weighted portfolio of its bonds, where the abnormal returns are weighted based on each bond's market value two months before the deal announcement. This mitigates problems with cross-correlation, and gives a more accurate representation of how the firm's bondholders are affected as a whole.

Our final pricing benchmark portfolios are segmented by currency (euro, US dollar, pound sterling), credit rating (BBB, A, AA, and AAA)[29] and duration (1-3, 3-5, 5-7, 7-10, and 10+ years).[30] If a benchmark has multiple bonds by the same issuer, only the bond with the largest issue size is included. If a benchmark has less than seven bonds, a reserve benchmark is used with the same currency and bond rating but with a duration bracket of 1-5 or 5+ years. We construct both equal and value-weighted benchmarks, with the latter using each bond's market value. Throughout the analysis we use the abnormal returns calculated with the value-weighted benchmarks, since this approach performs better when dealing with daily bond returns (Bessembinder et al., 2009). Nonetheless, the results are robust to the equal-weighted approach and are available on request.

Before proceeding to the empirical analysis it is useful to determine what constitutes economically significant abnormal bond returns. For stock returns, Brown and Warner (1980) set economic significance at 1%, about one-sixth of the historical yearly stock market risk premium. Bessembinder et al. (2009) infer that the threshold for abnormal bond returns should be 15-25 basis points (bp), since the typical bond earns a yearly risk premium of 100-150bp. However, the authors note that the yearly risk premium is much lower for investment-grade bonds, and argue that an abnormal return as small as 5bp is economically significant for high quality issues. We also adopt this threshold of 5bp, as our sample consists of investment-grade Eurobonds with low risk premia.

It is useful to remind that using Eurobonds is more appropriate for cross-country studies than using domestic bonds, and is a crucial part of our identification strategy. Eurobonds confine our analysis to large and creditworthy firms because reliable pricing benchmarks are difficult to construct in the market's shallow junk-grade segment. Ultimately, this dictates that whatever results we observe for Eurobond issuers are likely to be more pronounced for other firms. That said, domestic corporate bond markets outside the US are similarly thin in junk-grade issues.

[29] Bond ratings are obtained from Standard and Poor's or, when unavailable, Moody's Investors Service to maximize sample coverage. This should not affect our results, as ratings and ratings changes for these two agencies are highly correlated.

[30] Most public bond indices, including those published by Bank of America Merrill Lynch and iBoxx, are segmented by term-to-maturity. However, term-to-maturity incorrectly assumes that a bond's market risk sensitivity is independent of its coupon payments. Benchmark portfolios could be segmented further based on factors such as size or liquidity. Bessembinder et al. (2009) find that further segmentation does not improve benchmark performance significantly.

Bond prices in Thomson Reuters Eikon are dealer quotes that can contain matrix prices not separated from actual trade data. Matrix prices are not driven by firm-specific information, which should reduce explanatory power in our analysis. However, actual trade data are simply not reported in a systematic manner outside the US, and the comparatively high liquidity of Eurobonds should ensure that Reuters data reflect actual trades.[31]

3.2 Country-level Measures of Creditor Protection

We measure the quality of creditor rights in insolvency proceedings using the creditor rights index of Djankov et al. (2007). The index ranges from zero to four, measuring the number of laws protecting unsecured creditors from expropriation by more senior secured creditors. It has been shown to not only matter for creditors but also explain patterns in capital market development (Miller and Reisel, 2012). The index is available for 129 countries as of 2003, with higher values indicating better creditor rights. Following past studies, we use the 2003 index values for years in which the index is not available, as creditor rights remain largely stable over our time window (Cao et al., 2015; Qi and Wald, 2008).

The quality of debt claims enforcement through courts is measured using the debt enforcement index of Djankov et al. (2007). The index measures the number of calendar days needed to enforce a contract of unpaid debt worth half of the country's GDP per capita. It is available for 129 countries as of 2003.

We use Spamann's (2010) anti-director rights index (ADRI) to measure the protection of minority shareholders against expropriation by management or majority shareholders. Spamann's index updates earlier indices by La Porta et al. (1998) and Djankov et al. (2008). It is available for 46 countries as of 2008, with higher values indicating stronger minority rights.

We finally use the World Bank's rule of law index to capture the quality of the general regulatory environment. The index is one of the World Bank's six Worldwide Governance Indicators, and aggregates the quality of contract enforcement, property rights, the effectiveness and predictability of the judiciary, the control of corruption, and the

[31] The only comprehensive database of actual bond trades is the Trade Reporting and Compliance Engine (TRACE) database run by the US Financial Industry Regulatory Authority (FINRA). TRACE data are often used in academic research. However, Eurobonds are mostly ineligible for TRACE and in fact prohibited from trading by investment banks within the US due to their bearer form.

likelihood of crime and violence. The index is available for 215 countries between 1996 and 2014. It ranges from zero to five, with higher values indicating a stronger regulatory environment.

3.3 Descriptive Statistics

Table 1 shows descriptive statistics for our global sample of 1,100 cross-border M&As involving 194 bidding firms and 26 target firms with outstanding Eurobonds between 2000 and 2013. Firm data are obtained for the end of the fiscal year preceding the deal announcement from Worldscope, or if unavailable, CapitalIQ, Datastream, Orbis, or Amadeus. The table shows that all 1,100 M&As involved Eurobond issuers on the bidder side but only 26 on the target side. The small size of our target sample is not surprising, since Eurobond issuers tend to be large and internationally diversified firms that are rarely subject to takeover bids. Market capitalization and total assets are expressed in 2010 prices and, where applicable, converted into euro. Variable definitions are available in Appendix 2.

The Eurobond issuers involved in the sample M&As as bidders are larger than those involved as targets. The median book value of assets is €20.2 billion for the bidders and €16.7 billion for the targets, with the difference much larger in terms of market capitalization at €15.0 billion and €684 million, respectively. The differences between bidders and targets are also significant in terms of return on assets, leverage, and asset risk, with targets less profitable, riskier and more leveraged. The median bidder has a credit rating of A, and two outstanding Eurobonds with an average term-to-maturity of 4.9 years and duration of 4.0 years. The median target is rated BBB, and has two Eurobonds with an average term-to-maturity of 6.0 years and duration of 4.4 years.

The majority of the bidding firms are serial bidders, with the median firm involved in 23 deals over the 14-year sample period. Interestingly, the countries of the target firms in Table 1 offer superior creditor protection to the bidding firm countries in terms of creditor rights, claims enforcement quality, as well as the protection of minority investors.

Table 1 Descriptive statistics

Euro values are in 2010 prices. Bond ratings are cardinalized, with AAA=10, AA=9, A=8, BBB=7. Variable descriptions are in Appendix 2.

	Bidding firms				Target firms			
	N	Mean	Median	Std. dev.	N	Mean	Median	Std. dev.	*Diff. in means*
Assets (€ million)	1,100	37,982	20,159	45,851	26	23,740	16,696	22,790	*14,241*
Market capitalization (€ million)	1,100	29,203	15,077	35,562	26	3,540	684	4,658	*25,663****
Return on assets (%)	1,100	9.1	8.3	6.3	26	5.6	9.0	18.2	*3.4***
Leverage	1,100	0.28	0.26	0.13	26	0.32	0.28	0.17	*0.04**
Asset risk	1,100	0.013	0.012	0.004	26	0.025	0.016	0.043	*0.012****
Eurobonds per firm (#)	1,100	2.50	2	2.42	26	2.35	2	1.79	*0.16*
Term-to-maturity (years)	1,100	6.02	4.86	4.14	26	6.17	6.04	2.99	*0.14*
Duration (years)	1,100	4.18	4	2.22	26	4.42	4.47	1.92	*0.24*
Credit rating	1,100	7.59	8	0.75	26	7.31	7	0.47	*0.28**
Cross-border M&As per firm	1,100	31.30	23	27.93					
Creditor rights	1,100	1.74	1	1.49	26	2.38	3	1.58	*0.65***
Debt enforcement	1,100	5.00	5.21	0.76	26	5.28	5.41	0.69	*0.28**
Anti-director rights	1,100	2.93	3	0.69	26	3.31	3	0.68	*0.37****
Rule of law	1,100	4.06	4.12	0.37	26	4.11	4.14	0.32	*0.054*

4. Empirical Results

4.1 Abnormal Bond Returns around M&A Announcements

The abnormal bond returns on the Eurobonds of the sample's bidders and targets are shown in Table 2. Panel A indicates that, on the whole, bidder bondholders tend to react negatively and target bondholders positively to cross-border M&As. The mean abnormal bond returns are significant across all specifications, with the value-weighted benchmarks yielding -0.04% for bidder bonds and 0.26% for target bonds. The median returns are insignificant at -0.01% and 0.05%, respectively.

Table 2: Abnormal returns [-5,+5] on Eurobonds around cross-border M&A announcements

Abnormal bond returns are in percent. The difference in means t-test assumes unequal variances across subsamples. The significance of medians and differences in medians are based on signed-rank and rank-sum tests. *, ** and *** denote significance at the 10, 5 and 1% level.

	Benchmark indices	Mean	Median	N
Panel A: Full sample				
Bidding firms	Equal-weighted	-0.049**	-0.006**	1,100
	Value-weighted	-0.041**	-0.008	1,100
Target firms	Equal-weighted	0.258*	0.066	26
	Value-weighted	0.262*	0.050	26
Panel B: Bidding firms, France v UK				
France	Value-weighted	0.024	-0.005	295
UK	Value-weighted	-0.212***	-0.032**	194
Difference		*0.236****	*0.027**	

Cross-border M&As should benefit bondholders through risk reduction, since low correlations in the merging parties' cash flows and asset returns should lead to a so-called coinsurance effect. In this sense, international diversification is comparable to industrial diversification (Doukas and Kan, 2006). However, creditors are faced with considerable added risks due to greater informational asymmetries, and the uncertainties and complexities of insolvency proceedings against internationally diversified firms.

The positive target abnormal returns show that for target bondholders, the risk reduction effects of being taken over by a foreign bidder are large enough to outweigh other concerns. This is expected, since bidders tend to be larger, be more diversified, and have higher credit ratings. Previous studies find no evidence of such positive returns in domestic M&As for investment-grade targets (Billett et al., 2004; Bodnaruk and Rossi, 2016).

Panel B compares abnormal bidder bond returns for France and the UK, previously discussed as having very different creditor rights. Indeed, the creditor rights index is 0 for France and the maximum of 4 for the UK; otherwise, the two countries are similar in terms of claims enforcement, anti-director rights, and rule of law.[32] We find that the abnormal returns are significantly negative for UK bidders at a mean of -0.21% and median of -0.032%. In comparison, the same returns are small and insignificant for

[32] France and the UK have respective scores of 5.66 and 4.32 in claims enforcement, 4 and 3 in anti-director rights, and 4.16 and 3.93 in rule of law. However, the creditor rights index is 0 for France and the maximum 4 for the UK.

French bidders. Interestingly, we find similar results *vis-à-vis* the UK for other countries with relatively weak creditor rights including the US.[33] Whether this is attributable to positive spillovers offsetting the negative effects of cross-border M&As is investigated in the next sections.

Henceforth for the sake of brevity, we study the abnormal bond returns calculated over the value-weighted benchmarks; the results using the equal-weighted approach are similar and available on request.

4.2 Creditor Protection Spillover Effects in Cross-Border M&As

We now investigate whether country-level differences in creditor protection affect the performance of the bidder Eurobonds in our global sample of 1,100 cross-border M&As. We have hypothesized that cross-country spillovers of creditor protection are positive, such that bondholders respond more positively to deals that expose their firm to a jurisdiction with stronger creditor protection.

To examine the occurrence of positive spillovers, we create dummy variables corresponding to each of our four creditor protection measures. Each variable is equal to one if the target country offers above-median (strong) creditor protection and the bidder country offers below-median (weak) creditor protection. The median values are calculated using the entire sample. The dummy variables are equal to zero in all other cases, with bidder bondholders expected to reap limited benefits from exposure to the target jurisdiction.

Table 3 shows the abnormal bond returns stratified by each dummy variable. We find evidence of positive creditor protection spillovers across all four creditor protection measures, in line with each of Hypotheses (1) to (4). Bondholders' response is strongest to the relative quality of creditor rights, with the mean return positive at 0.05% when the target country is more creditor-friendly, and negative at -0.06% otherwise. Both returns are statistically and economically significant, and the difference between them is significant at the 1% level. The measures capturing claims enforcement quality, anti-director rights, and the general rule of law produce similar results. In each case, the mean return is insignificantly positive (0.04%, 0.01%, 0.02%) when the target jurisdiction is more creditor-friendly, and significantly negative at -0.06% otherwise. The differences in

[33] The mean abnormal bond return is significantly negative at -0.21% for UK bidders, but insignificantly positive at 0.01% for US bidders. The US has a creditor rights score of 1, against a score of 4 for the UK.

the means are also significant in each case. These findings imply that cross-border M&As offer considerable scope for positive spillovers in creditor protection, which for bondholders can not only offset but outweigh the perceived risks and uncertainties introduced by these deals. As mentioned, the Eurobonds issuers in our sample are large investment-grade firms, such that the same effects may be more pronounced for other firms.[34]

Table 3: Abnormal returns [-5,+5] on bidding firms' Eurobonds, by country characteristics

Abnormal bond returns are in percent, calculated using value-weighted benchmarks. The difference in means t-test assumes unequal variances across subsamples. The significance of medians and differences in medians are based on signed-rank and rank-sum tests. Variable descriptions are in Appendix 2. *, ** and *** denote significance at the 10, 5 and 1% level.

		Mean	Median	N
Target firm country scores better than bidding firm country in:				
Creditor rights	Yes	0.054*	0.004	175
	No	-0.059***	-0.012**	925
	Difference	*0.114****	*0.016**	
Claims enforcement	Yes	0.043	0.003	219
	No	-0.062***	-0.011*	881
	Difference	*0.105***	*0.014*	
Anti-director rights	Yes	0.014	0.002	224
	No	-0.056**	-0.013**	876
	Difference	*0.070**	*0.015**	
Rule of law	Yes	0.019	-0.009	224
	No	-0.057**	-0.008	876
	Difference	*0.076***	*0.001*	

4.3 The Impact of Deal and Firm Characteristics on Abnormal Bidder Bond Returns

In Table 4, we study how the bidder abnormal bond returns in our cross-border M&A sample are affected by deal- and firm-level characteristics previously examined in the academic literature.

Panel A examines the impact of deal characteristics, beginning with industry focus. As with international diversification, the combination of firms from different industries should have coinsurance effects. This dictates that all else equal, bondholders should benefit more from diversifying deals where the two-digit SIC codes of bidder and target are different. We find no evidence that the abnormal returns are more positive around diversifying deals. Billett et al. (2004) find similar results for US domestic M&As.

[34] As a robustness test, we study the returns on the domestic bonds of our sample of US bidding firms. We find that the raw returns on their domestic bonds are about four times as large as those on their Eurobonds.

Table 4: Abnormal returns [-5,+5] on bidding firm's Eurobonds, by deal and firm characteristics

Abnormal bond returns are in percent, calculated using value-weighted benchmarks. The difference in means t-test assumes unequal variances across subsamples. The significance of medians and differences in medians are based on signed-rank and rank-sum tests. Variable descriptions are in Appendix 2. *, ** and *** denote significance at the 10, 5 and 1% level.

		Mean	Median	N
Panel A: Deal characteristics				
Industry focus	Diversifying	-0.042	0.000	473
	Non-diversifying	-0.041**	-0.010*	627
	Difference	*-0.001*	*0.010*	
Deal status	Successful	-0.052**	-0.009*	953
	Unsuccessful	0.028	0.014	147
	Difference	*-0.080**	*-0.023*	
Target public status	Target listed	-0.004	0.003	154
	Target unlisted	-0.047**	-0.011	946
	Difference	*0.043*	*0.014*	
Method of payment (listed targets)	Cash or mixed	-0.001	0.003	150
	Equity only	-0.114	-0.0056	4
	Difference	*0.113*	*0.059*	
Deal method (listed targets)	Tender offer	0.111	0.020	27
	Negotiated merger	-0.028	0.001	127
	Difference	*0.138*	*0.019*	
Deal attitude (listed targets)	Hostile	-0.638	-0.638	2
	Friendly	0.005	0.004	152
	Difference	*-0.643*	*-0.643*	
Panel B: Firm characteristics				
Deal size (target/bidder)	> sample median	-0.059**	-0.011	550
	< = sample median	-0.020	-0.002	550
	Difference	*-0.039*	*-0.009*	
Leverage	Combined firm > bidder	-0.031	-0.012	880
	Combined firm < bidder	-0.083	0.006	220
	Difference	*0.052*	*-0.018*	
Bidder has creditor-shareholder	Yes	-0.042	-0.016	44
	No	-0.041**	-0.008	1056
	Difference	*-0.001*	*0.008*	

We next examine the abnormal bond returns around bids that are successfully completed with those that are ultimately withdrawn. The results show that the returns are significantly negative around successful deals but insignificant around withdrawn bids. This indicates that bondholders can reasonably assess whether a bid is likely to succeed.

Previous studies link value creation in M&As to the target firm's listing status. It is unclear how bondholders should be affected by whether the target is private or public. However, a negative listing puzzle has been shown to affect abnormal stock returns

around M&A announcements, which persist over time and across countries (Faccio et al., 2006). We find no statistical evidence of a negative listing effect.

For our subsample of deals involving listed targets, we next examine the impact of the payment method and the type and attitude of the takeover bid. Bidding firms may choose to finance deals in a way that reverses any risk reductions arising from cash flow and asset coinsurance effects. This implies that the abnormal bond returns should be lower around cash-financed deals that are often funded with debt and reduce the collateral available to creditors. Similar to Billett et al. (2004) we find no evidence that bondholders respond more negatively to cash-financed deals, although cross-border M&As are typically cash-financed so our sample contains few equity-financed deals.

Our results show no statistical evidence that the abnormal bond returns are different for tender offers compared with negotiated mergers. Tender offers are often associated with greater value creation to the extent that they indicate more confidence on the bidder's part in realizing efficiency gains (Loughran and Vijh, 1997). Bondholders seem to respond negatively to hostile takeover bids, but cross-border M&As are rarely hostile with only two hostile deals in the sample. The negative returns are not surprising since hostile bids with aggressive bargaining leave little money on the table for the bidder, and the target may adopt high-risk strategies to fend off takeover threats, including paying out liquid assets and increasing leverage (Schwert, 2000).

Panel B examines how the abnormal bond returns are affected by firm-level characteristics including deal size, the combined leverage of bidder and target relative to that of the bidder, and whether the bidder has a creditor-shareholder. Of the 1,100 target firms, accounting data are available for the 154 public firms and a further 222 private firms. For the remaining 724 privately held targets, we are unable to retrieve data from any of our databases. For the missing data we use mean imputation, replacing them with industry averages at the country level. This allows us to keep these observations in the sample, albeit at the expense of weakening explanatory power.

We first stratify the abnormal bond returns by whether the ratio of target to bidder assets is above or below the sample median. The returns are insignificantly different between the two groups, but are less negative and insignificant when the target firm is relatively small. Billett et al. (2004) previously find that bidder bondholders respond more positively to smaller targets in US domestic deals. The authors attribute this to the

difficulties of absorbing and realizing synergies on larger acquisitions, and managerial hubris and agency concerns.

We next consider financial risk changes due to the combination of bidder and target leverage. We calculate the combined firm's book leverage using weights based on each firm's book value of assets. We find no evidence that the abnormal bond returns are more negative when the combined leverage is higher than that of the pre-merger bidder. This is in line with Billett et al. (2004), and is not surprising since management can adjust leverage both through the payment method and after the takeover.

Lastly, we consider whether the bidding firm has a creditor-shareholder, a bank or other financial institution that both lends to and invest in the firm. This dual holdership phenomenon is well-documented for Continental Europe, but 10% of US shares are also held by creditor-shareholders (Bodnaruk and Rossi, 2016). The influence of a creditor-shareholder may not only make M&As more creditor-friendly, but facilitate access to debt or better credit terms to finance the deal (Jiang et al., 2010). We find no statistical evidence that the presence of a creditor-shareholder affects the abnormal bond returns.

4.4 Multivariate Analysis of Creditor Protection Spillovers

In Table 5 we employ multivariate regressions to examine whether country-level differences in creditor protection affect the performance of bidding firms' Eurobonds.[35] In Models (1) to (4) we run separate regressions for each dummy variable corresponding to our four creditor protection measures, with Model (5) including all four variables. The regressions include the deal and firm-level characteristics previously studied in Table 4, and control for bidder industry and year fixed effects. As a country-level control measure, we include variables capturing the legal origin of the bidder and target countries.

[35] In unreported regressions, we also examine whether the target firms' Eurobonds are affected by country-level differences in creditor protection. Despite the small sample size of only 26 observations, we find evidence that target bondholders respond even more strongly to superior creditor protection in the bidder country. This is not surprising, since the target firms are smaller with lower credit ratings than the bidding firms, thus their bondholders should be more sensitive to creditor protection spillovers.

Table 5: Abnormal returns [-5,+5] on bidding firms' Eurobonds, multivariate regressions

Abnormal bond returns are in percent, calculated using value-weighted benchmarks. Independent variables are dummies equal to one if the variable description holds and zero otherwise. Observations are clustered by bidder industry. Heteroskedasticity-robust standard errors are in parentheses. Variable descriptions are in Appendix 2. *, ** and *** denote significance at the 10, 5 and 1% level.

	(1)	(2)	(3)	(4)	(5)
Creditor rights better in target	0.092***				0.071**
	(0.026)				(0.032)
Claims enforcement better in target		0.081**			0.083**
		(0.039)			(0.040)
Anti-director rights better in target			0.054		0.029
			(0.045)		(0.040)
Rule of law better in target				0.058	0.049
				(0.065)	(0.073)
Diversifying	-0.002	0.000	0.003	-0.004	-0.003
	(0.069)	(0.069)	(0.071)	(0.072)	(0.072)
Successful	-0.064	-0.062	-0.067	-0.070	-0.062
	(0.041)	(0.042)	(0.042)	(0.042)	(0.042)
Target listed	-0.024	-0.012	-0.024	-0.024	-0.020
	(0.050)	(0.050)	(0.048)	(0.051)	(0.053)
Cash or mixed	0.121	0.142	0.137	0.141	0.130
	(0.103)	(0.096)	(0.094)	(0.105)	(0.092)
Tender offer	0.264**	0.266**	0.269**	0.264**	0.272**
	(0.119)	(0.121)	(0.116)	(0.121)	(0.122)
Hostile	-2.260***	-2.223***	-2.219***	-2.250***	-2.264***
	(0.403)	(0.371)	(0.373)	(0.398)	(0.407)
Deal size > sample median	-0.005	-0.007	-0.003	-0.006	-0.003
	(0.051)	(0.051)	(0.053)	(0.053)	(0.053)
Leverage combined firm > bidder	0.050	0.058	0.050	0.052	0.057
	(0.093)	(0.093)	(0.094)	(0.094)	(0.093)
Bidder has creditor-shareholder	-0.058	-0.059	-0.050	-0.060	-0.068
	(0.054)	(0.056)	(0.054)	(0.054)	(0.060)
Bidder is common law	-0.105*	-0.083	-0.101*	-0.101*	-0.071
	(0.056)	(0.062)	(0.060)	(0.056)	(0.056)
Target is common law	0.030	0.032	0.028	0.028	0.014
	(0.055)	(0.058)	(0.061)	(0.051)	(0.054)
Constant	-0.058	-0.059	-0.050	-0.060	-0.068
	(0.054)	(0.056)	(0.054)	(0.054)	(0.060)
Bidder industry FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Adj. R-squared	0.047	0.047	0.046	0.046	0.048
N	1,100	1,100	1,100	1,100	1,100
Number of clusters	46	46	46	46	46
Maximum VIF	1.36	1.37	1.36	1.37	1.39
Mean VIF	1.08	1.10	1.09	1.09	1.14
Condition index	11.85	12.03	11.92	11.88	12.87

The regressions confirm the creditor protection spillovers that the univariate results have shown. The abnormal bond returns remain most affected by the relative quality of creditor rights, increasing by 0.09% in Model (1) and 0.07% in Model (5) when the target

jurisdiction is more creditor-friendly. When the target country offers more efficient claims enforcement, the abnormal returns increase by 0.08%. These return increases are uniformly significant at least at the 5% level, confirming Hypotheses (1) and (2). They are also considerably higher than the 5bp abnormal return that Bessembinder et al. (2009) regard as being economically significant for high-quality bonds.

The anti-director rights and rule of law variables are positive but insignificant in the regressions, thus our earlier univariate results for Hypotheses (3) and (4) are not corroborated. This is not surprising and actually strengthens our identification strategy. Minority investor protection and the quality of the regulatory system are indirect measures of creditor protection that affect all outside corporate constituencies. However, creditor rights and claims enforcement measure creditor protection directly, with their significance showing that it is ultimately improvements in creditors' relative bargaining power that bondholders respond to in cross-border M&As.

Of the deal and firm-level controls, the abnormal bond returns are affected by the takeover bid's method and attitude. Contrary to our univariate results, the regressions show that the returns are significantly higher around tender offers compared with negotiated deals, and lower around hostile takeover bids. These results correspond to our earlier conjectures that tender offers are associated with greater value creation, while hostile bids are viewed as risk factors that otherwise leave little money on the table for bidding firms (Loughran and Vijh, 1997; Schwert, 2000).

The returns show no statistical relationship with the deal's industry focus, the payment method or the target's listing status, and the deal size, leverage, and creditor-shareholder variables are also insignificant. Billett et al. (2004) previously study industry focus, the payment method, deal size, and leverage for US domestic deals with public targets only, and find no multivariate evidence that abnormal bond returns are affected by these deal- and firm-level characteristics except deal size.[36]

Models (1), (3) and (4) show a statistical relationship between the abnormal returns and the bidder country's legal origin, with the returns lower for common law bidders. Nonetheless, the legal origin variable is insignificant in the final Model (5) that includes

[36] The deal size variable employed by Table 5 is a dummy variable equal to one if the deal size is greater than the sample median and zero otherwise. In unreported robustness tests we use the continuous deal size variable, defined as the ratio of the target's book value of assets to the bidder's book value of assets, but the results are unchanged. To avoid selection bias concerns, we additionally control for the bidder's pre-merger leverage ratio and find that it does not affect our results.

all four country-level creditor protection measures. This again indicates that the importance of creditor rights and claims enforcement quality outweigh more indirect measures of creditor protection.[37]

4.5 Subsample Analysis

In Table 6 we perform subsample analyses to corroborate our earlier results in Table 5. In order, we (i) exclude M&As by the same bidder that are announced within 30 days of each other, (ii) exclude serial bidders that made more than ten takeover bids over a three-year period, (iii) exclude deals where the bidder issued Eurobonds within three months around the deal announcement, and (iv) include M&As involving US and European bidders only. The results once again confirm positive spillovers in both creditor rights and claims enforcement quality in cross-border M&As.

The motivation for excluding overlapping deals and serial bidders is that bidder bondholders are likely to respond more strongly to one-time takeover bids, and recent or ongoing M&As may continue to have lingering valuation effects. The exclusion of overlapping deals has no material impact on the regression.[38] We find that the exclusion of serial bidders cuts our sample in half to 502 deals, and greatly magnifies bondholder sensitivity to positive creditor protection spillovers. Indeed, the abnormal bond returns now increase by 0.11% in response to both superior creditor rights and more efficient claims enforcement in the target jurisdiction. It is notable that the anti-director rights index capturing minority investor protection is now also significant, increasing the abnormal returns by 0.13%.

[37] In unreported regressions we also control for the difference in GDP per capita between the bidder and target countries, to the extent that country wealth proxies for the quality of creditor protection. We find no evidence that the relative wealth of the bidder and target countries affects the abnormal returns.

[38] In unreported robustness tests we also exclude overlapping deals announced within 40 days and 50 days of each other, with similar results.

Table 6: Abnormal returns [-5,+5] on bidding firms' Eurobonds, subsample analysis

Abnormal bond returns are in percent, calculated using value-weighted benchmarks. Model (2) excludes deals announced within 30 days by the same bidder. Model (3) excludes serial bidding firms that made more than ten takeover bids over a three-year period. Model (4) includes US and European bidders only. Model (5) excludes bidders that issued Eurobonds within three months around deal announcements. Independent variables are dummies equal to one if the variable description holds and zero otherwise. Observations are clustered by bidder industry. White (1980) heteroskedasticity-robust standard errors are in parentheses. Variable descriptions are in Appendix 2. *, ** and *** denote significance at the 10, 5 and 1% level.

	All cross-border M&As	No overlapping deals	No serial bidders	US and EU bidders only	No bonds issued close to M&As
	(1)	(2)	(3)	(4)	(5)
Creditor rights better in target	0.071**	0.079**	0.110*	0.075*	0.078***
	(0.032)	(0.030)	(0.062)	(0.039)	(0.029)
Claims enforcement better in target	0.083**	0.073*	0.105*	0.078*	0.086**
	(0.040)	(0.036)	(0.061)	(0.039)	(0.041)
Anti-director rights better in target	0.029	0.037	0.127*	0.032	0.019
	(0.040)	(0.040)	(0.066)	(0.039)	(0.045)
Rule of law better in target	0.049	0.039	-0.010	0.039	0.050
	(0.073)	(0.065)	(0.091)	(0.090)	(0.073)
Deal, firm and legal origin controls	Yes	Yes	Yes	Yes	Yes
Bidder industry FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Adj. R-squared	0.048	0.055	0.033	0.047	0.049
N	1,100	1,080	502	1,028	1,087
Number of clusters	46	46	43	43	46
Maximum VIF	1.39	1.39	1.52	1.38	1.38
Mean VIF	1.14	1.14	1.16	1.14	1.14
Condition index	12.87	13.01	12.04	12.98	12.87

We perform a subsample analysis on US and European bidders because, while these bidders dominate our sample by some margin, it is useful to ensure that the positive creditor protection spillovers we have detected are not driven by outlier countries, such as emerging countries with low creditor protection standards. The results of the analysis are very similar to those based on the full sample.

We finally exclude deals where the bidder issued Eurobonds within three months around deal announcements. These may have been issued to finance the takeovers, and have significant wealth and risk implications for existing bondholders. Only 13 observations are eliminated from the sample, and the results remain fundamentally unaffected.

4.6 Asset Risk, Bond Maturity, and Stock Market Reaction to Previous Deal

In Table 7 we split the full sample into subsamples of (i) bidders with asset risk lower versus higher than the sample average, (ii) bidders with an average bond maturity lower versus higher than the sample average, and (iii) bidders whose previous M&As generated positive versus negative abnormal stock returns.

Table 7: Abnormal returns [-5,+5] on bidding firms' Eurobonds, by asset risk, bond maturity and stock market reaction to previous deal

Abnormal bond returns are in percent, calculated using value-weighted benchmarks. Models (1) and (2) show bidders with average bond maturities below v above the sample average. Models (3) and (4) show firms with below-average v above-average asset risk. Models (5) and (6) show positive v negative abnormal stock returns around the previous M&As of bidding firms. Independent variables are dummies equal to one if the variable description holds and zero otherwise. Observations are clustered by bidder industry. heteroskedasticity-robust standard errors are in parentheses. Variable descriptions are in Appendix 2. *, ** and *** denote significance at the 10, 5 and 1% level.

	Asset risk		Bond maturity		Abn. stock return around previous deal	
	< average	≥ average	< average	≥ average	> 0	≤ 0
	(1)	(2)	(3)	(4)	(5)	(6)
Creditor rights better in target	0.036	0.093***	0.049	0.181**	0.089**	0.097***
	(0.103)	(0.031)	(0.032)	(0.068)	(0.043)	(0.026)
Claims enforcement better in target	0.070	0.133*	0.094**	0.073	0.070	0.131**
	(0.065)	(0.069)	(0.040)	(0.115)	(0.052)	(0.057)
Anti-director rights better in target	0.089	-0.045	-0.025	0.098	-0.063	0.041
	(0.055)	(0.066)	(0.053)	(0.070)	(0.047)	(0.037)
Rule of law better in target	0.071	0.039	0.111	-0.129	0.009	0.085
	(0.140)	(0.043)	(0.083)	(0.088)	(0.103)	(0.064)
Legal origin, deal & firm controls	Yes	Yes	Yes	Yes	Yes	Yes
Bidder industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R-squared	0.078	0.041	0.067	0.084	0.088	0.064
N	525	575	731	369	566	430
Number of clusters	35	38	42	31	39	34
Maximum VIF	1.33	1.51	1.28	1.60	1.29	1.41
Mean VIF	1.16	1.18	1.14	1.19	1.14	1.17
Condition index	12.28	13.90	13.67	12.42	12.89	13.52

We define asset risk as the standard deviation of unlevered daily stock returns over days [-750,-30] before deal announcements.[39] We divide the sample by asset risk and bond maturity because bondholders exposed to higher asset volatility and market risk should be more sensitive to creditor protection standards. Indeed, we find that bondholders with

[39] In unreported regressions we also split the full sample into completed versus withdrawn deals. We find that bondholders are only sensitive to creditor protection spillovers in M&As that are subsequently completed. Indeed, based on the univariate results in Table 4 we previously concluded that bondholders can reasonably assess whether a takeover bid is likely to succeed.

greater asset risk exposures respond more strongly to positive spillovers in creditor protection. For high asset risk bondholders, the abnormal returns are higher by 0.09% when the target country has strong creditor rights, and 0.13% when it has more efficient claims enforcement. For low asset risk bondholders, the return increases are both smaller and insignificant.

The subsamples partitioned by bond maturity also show evidence for the greater sensitivity of bondholders exposed to higher market risk. For M&As where the target country has strong creditor rights, the increase in the abnormal returns is hugely significant at 0.18% on above-average maturity bonds but insignificant at 0.05% on below-average maturity bonds. The same result does not hold for the quality of claims enforcement, with the increase in the returns similar in size, but insignificant for above-maturity bonds while significant for below-maturity bonds.

We partition bidders by the abnormal stock returns on their previous M&As because we expect bondholders to be more sensitive to creditor protection standards after earlier transactions badly received by the market. This is because bidding firm performance has been shown to consistently deteriorate deal by deal, with bidders actually inching closer and closer to financial distress (Laamanen and Keil, 2008). We confirm that bidder bondholders are more sensitive to creditor protection spillovers after ill-received M&As. If the bidder's previous deal generated negative abnormal stock returns, the abnormal bond returns around its current transaction increase by 0.10% for stronger creditor rights and 0.13% for better claims enforcement in the target country. If the abnormal stock returns were previously positive, the increases in the current abnormal bond returns are smaller and only significant for stronger creditor rights.

4.7 Further Robustness Tests

We now perform a variety of additional robustness tests to corroborate our earlier results and provide further insight into positive creditor protection spillovers. [40] In Table 8, we provide evidence that exogenous shocks in creditor protection generate positive spillover effects. We study the 49 cross-border M&As involving Italian target firms, and

[40] We perform a range of robustness tests even beyond those reported in the paper. Notably, to reduce concerns about endogeneity and selection bias, we use a nearest-neighbor and propensity score matching approach to match bidders with targets. Using a nearest-neighbor estimator, the treatment effects in terms of the abnormal bond returns are 0.08% and 0.19% for creditor rights and claims enforcement, respectively. The treatment effects using propensity score matching are even higher at 0.11% and 0.28%, respectively.

exploit an exogenous change in the Italian Insolvency Act in 2008. Legislative Decree No. 169/2007 sought to shorten the liquidation process in Italy by giving trustees discretion in liquidating assets and allowing creditors to propose arrangements for other creditors to take over distressed assets. We find that since the decree entered into force, the bondholders of bidders from countries with below-median creditor protection respond more positively to takeover bids for Italian targets. The increases in abnormal bond returns hold with respect to both creditor rights and claims enforcement quality, and are significant at the 5% level despite the small sample size.

Table 8: The 2008 change in the Italian Insolvency Act

Abnormal bond returns are in percent in days [-5,+5] around M&A announcements, calculated using value-weighted benchmarks. Independent variables are dummies equal to one if the variable description holds and zero otherwise. Observations are clustered by bidder industry. White (1980) heteroskedasticity-robust standard errors are in parentheses. Variable descriptions are in Appendix 2. *, ** and *** denote significance at the 10, 5 and 1% level.

	(1)	(2)
Creditor rights < sample median in bidder	-0.593	
	(0.387)	
Creditor rights < sample median in bidder x post-2008	0.975**	
	(0.464)	
Claims enforcement < sample median in bidder		-0.468
		(0.439)
Claims enforcement < sample median in bidder x post-2008		1.076**
		(0.528)
Post-2008	-0.797**	-1.008***
	(0.326)	(0.329)
Legal origin, deal and firm controls	Yes	Yes
Bidder industry and year FE	Yes	Yes
Adj. R-squared	0.069	0.086
N	49	49

In Table 9 we perform a variety of additional robustness tests. Model (1) replaces the static creditor rights and debt enforcement indices of Djankov et al. (2007) with the World Bank's similar but dynamic Doing Business indicators available since 2004 for 189 countries. The World Bank's Getting Credit indicator is actually based on Djankov et al. (2007), while its Enforcing Contracts indicator is based on Djankov et al. (2003). For the years in which the indicators are unavailable we use the Djankov et al. (2007) indices. We confirm that the creditor protection spillovers that we have previously identified are robust to the use of the World Bank indicators across all model specifications previously shown in Table 5. The model reported in Table 9 includes both indicators simultaneously, and shows that the abnormal bond returns increase by 0.07% when the target country

offers stronger creditor protection as measured by both Getting Credit and Enforcing Contracts.

Model (2) examines the subsample of only those 376 deals where accounting data are available for the target firms. We have previously used mean imputation to fill accounting data unavailable from known sources for 724 privately held targets. While this has enabled us to keep these observations in the full sample, the use of non-firm specific information affects the explanatory power of our regressions. Indeed, the regression's R-squared is close to three times as high as in the previous regressions. The abnormal bond returns are now also 0.14% higher when creditor rights are stronger in the target jurisdiction. The coefficient on the claims enforcement variable is insignificant in the model, but it is significant in unreported regressions that omit the creditor rights index.

Models (3) and (4) divide the sample into partial acquisitions of majority control and full takeovers of 100% equity. We expect that bondholders are more responsive to creditor protection spillovers in full takeovers, as these better integrate the target into the bidder and create greater scope for target country regulation to affect managerial behavior and risk-taking. Indeed, the increase in the abnormal bond returns is only significant for full takeovers, at 0.10% and 0.07% if the target jurisdiction offers stronger creditor rights and better claims enforcement, respectively.

Models (5) to (7) confirm the robustness of our findings to three more alternative model specifications. Model (5) includes controls for the bidding firm's credit rating and average bond duration. Model (6) controls for both bidder industry and target industry fixed effects simultaneously. The regressions show that our results are fundamentally unchanged. Model (7) controls for fixed effects at the level of the bidding firm rather than bidder industry. The objective of this robustness test is to control for any time-invariant firm-level omitted variables and to reduce selection bias concerns. In the model, the effect of creditor rights on the abnormal bond returns remains significant, both statistically and economically, at 0.08%, while the effect of claims enforcement becomes smaller and insignificant.

In Model (8), we study an expanded sample that includes both domestic and cross-border M&As by the 350 Eurobond issuers contained in our sample of 1,194 Eurobonds. During the selection of our sample we identified 781 domestic deals involving these firms as bidders, mostly for the US (187 deals), the UK (152), France (109), Italy (74), the Netherlands (50) and Germany (45). The combined sample brings the total number of

M&As to 1,881. As expected, the inclusion of domestic M&As has no material impact on the results, since these deals do not generate creditor protection spillovers.

The final Model (9) tests our earlier conjecture that cross-border M&As generate positive but not negative spillovers in creditor protection. We did not expect negative spillovers to occur because creditors retain their ability to litigate in jurisdictions that their firm already operates in. To check for any negative spillovers we create new dummy variables for each creditor protection measure, which equal one if the bidder country offers above-median (strong) creditor protection and the target country offers below-median (weak) creditor protection. We find no evidence of negative spillovers across any of the model specifications previously shown in Table 5. In the model reported in Table 9, each creditor protection variable has a negative sign but is statistically insignificant.[41]

[41] We also perform a similar analysis for our sample of 26 cross-border M&As involving target firms with outstanding Eurobonds. The results again show no evidence of negative spillovers.

Table 9: Further robustness tests.

Abnormal bond returns are in percent, calculated using value-weighted benchmarks. Model (1) uses the Getting Credit and Enforcing Contracts indicators of World Bank Doing Business. Model (2) includes only those M&As where target accounting data are available. Models (3) and (4) respectively show partial acquisitions of majority control and full takeovers of 100% equity. Model (5) controls for bidder credit ratings and average bond durations. Model (6) controls for both bidder and target industry fixed effects. Model (7) controls for bidder fixed effects. Model (8) includes both domestic and cross-border M&As. Model (9) investigates negative creditor protection spillovers. Independent variables are dummies equal to one if the variable description holds and zero otherwise. Observations are clustered by bidder industry. White (1980) heteroskedasticity-robust standard errors are in parentheses. Variable descriptions are in Appendix 2. *, ** and *** denote significance at the 10, 5 and 1% level.

	Doing Business indicators	No mean imputation for targets	Partial acquisitions of majority control	Full takeovers of 100% equity	Controls for credit rating and duration	Target industry fixed effects	Bidder fixed effects	Include domestic deals	Negative spillovers
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Creditor rights better in target	0.072*	0.141**	-0.139	0.102*	0.066**	0.073**	0.078*	0.056*	
	(0.038)	(0.063)	(0.236)	(0.055)	(0.032)	(0.033)	(0.045)	(0.033)	
Creditor rights better in bidder									-0.042
									(0.042)
Claims enforcement better in target	0.070*	0.095	0.191	0.070*	0.080*	0.086*	0.004	0.090**	
	(0.038)	(0.068)	(0.183)	(0.041)	(0.042)	(0.044)	(0.056)	(0.041)	
Claims enforcement better in bidder									-0.054
									(0.044)
Anti-director rights better in target	0.039	0.075	0.056	0.001	0.022	0.034	-0.002	0.039	
	(0.042)	(0.106)	(0.151)	(0.059)	(0.038)	(0.041)	(0.038)	(0.040)	
Anti-director rights better in bidder									-0.052
									(0.083)
Rule of law better in target	0.042	-0.030	0.147	0.033	0.049	0.046	0.035	0.085	
	(0.071)	(0.085)	(0.212)	(0.074)	(0.071)	(0.062)	(0.046)	(0.080)	
Rule of law better in bidder									-0.004
									(0.042)
Legal origin, deal and firm controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bidder industry FE	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Target industry FE						Yes			
Bidder FE							Yes		
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R-squared	0.048	0.122	0.099	0.058	0.049	0.049		0.045	0.045
N	1,100	376	407	1,052	1,100	1,100	958	1,881	1,100
Number of clusters	46	34	35	41	46	46	187	50	46
Maximum VIF	1.36	1.45	1.59	1.61	1.39	1.38	1.38	1.52	1.86
Mean VIF	1.14	1.15	1.28	1.25	1.14	1.14	1.12	1.21	1.24
Condition index	12.42	12.26	6.63	7.13	12.36	12.87	12.32	13.49	13.15

5. Conclusion

This paper has shown that bond performance around cross-border M&As is affected by country-level creditor protection rules and regulations. We have studied a large global sample of 1,100 cross-border deals involving non-financial firms, investigated returns on Eurobonds rather than domestic bonds, and employed a robust matching portfolio method with hand-constructed pricing benchmarks. The use of Eurobonds rather than domestic bonds is more appropriate for international bond market event studies and has been a crucial part of our identification strategy.

Previous studies have often argued that there are limitations to functional spillovers in creditor protection as a result of cross-border M&As. We have shown that positive spillovers both occur and are economically significant. These results are stronger for firms with higher asset volatility, longer maturity bonds, and a higher likelihood of financial distress, and are robust to a variety of robustness tests. We have also discussed in great institutional detail how the spillover mechanism works. Exposure to a more creditor-friendly jurisdiction can subject management to an increased threat of insolvency proceedings and more serious consequences if the firm goes into financial distress. More importantly, jurisdictional cooperation in multinational insolvencies blurs national boundaries in creditor protection, and actually creates scope for insolvency arbitrage by firms, governments, and creditors alike.

The findings and institutional discussions presented in this paper fit nicely into the international business literature on cross-border M&As. Our results provide further evidence that the economic impact and implications of cross-border M&As should not be underestimated. The fact that international diversification allows creditors to arbitrage across legal systems is rarely discussed outside the legal literature and is not widely known. Corporate managers engaging in cross-border M&As should be aware of the issues raised here because should their firm go into financial distress, they may find that the relative bargaining power of their creditors and other constituencies with respect to insolvency proceedings is quite different from what they expected. At the same time, it is important for the international business literature to further consider the effects of country-level differences in national regulation on the behavior and operations of multinational firms.

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Appendix 1: Sample Distribution of Bidder and Target Countries

Bidder country \ Target country	AR	AT	AU	BE	BR	CA	CH	CL	CO	DE	DK	EG	ES	FI	FR	GB	GR	HK	IE	IL	IN	IT	JO	JP	KE	KR	MX	NL	NO	NZ	PE	PK	PT	SE	SG	TH	TR	TW	US	ZA	Total
AR		1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
AT	0		0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2
AU	0	0		0	0	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	1	0	0	0	0	0	0	0	1	0	10
BE	0	0	0		0	0	1	0	0	1	0	1	0	0	3	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	9
BR	1	0	1	1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	8
CA	0	0	0	0	0		0	0	1	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	7	0	13
CH	0	0	1	0	0	1		0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	5	0	13
CL	1	0	0	0	1	0	0		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	4
DE	0	1	0	3	1	5	6	0	0		1	0	2	0	4	5	0	1	0	0	5	0	0	3	0	2	1	4	0	1	0	0	0	3	0	0	3	0	14	0	65
DK	0	0	0	0	0	0	1	0	0	2		0	0	1	0	3	0	0	0	0	1	0	0	0	0	0	0	2	1	0	0	0	0	5	0	0	0	0	1	0	17
ES	0	0	0	0	1	0	0	0	1	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3
FI	0	1	0	0	1	0	2	0	0	1	2	0	0		1	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	2	0	0	0	9	0	22
FR	8	2	4	10	26	5	16	3	4	20	3	5	17	0		24	1	5	2	2	19	24	2	7	1	3	2	6	1	0	0	0	1	4	2	2	9	2	50	3	295
GB	3	0	9	2	6	4	5	0	1	15	4	1	6	2	16		7	1	3	0	9	8	0	3	0	1	1	3	2	2	0	0	2	2	0	0	6	0	68	2	194
GR	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
HK	0	0	2	0	1	0	1	0	0	0	0	0	0	0	0	1	0		0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	8
IN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
IT	1	0	0	1	1	1	0	1	1	3	0	0	5	0	6	0	2	0	1	0	2		0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	1	0	29
JP	0	0	1	0	2	1	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	9
KR	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0		0	0	1	0	0	0	0	0	1	0	0	0	0	1	0	6
MX	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0		1	0	0	0	0	0	0	0	0	0	0	0	3	0	7
NL	1	0	2	7	2	1	5	1	0	17	0	1	3	0	7	8	1	0	0	1	2	6	0	0	1	3	1		1	1	0	0	0	2	0	0	1	0	30	0	105
NO	0	0	2	0	3	0	0	0	0	1	6	0	2	1	2	4	0	0	0	0	0	0	0	0	0	0	1	2		0	0	0	0	7	0	0	0	0	4	0	35
NZ	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	1
PT	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	1	0	6
SE	6	1	0	2	2	2	3	2	1	3	6	0	9	0	7	12	0	1	1	0	0	2	1	0	0	2	1	5	3	0	0	0	0		2	1	6	2	14	4	101
TH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	1
TR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		0	0	0	1
TW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0		0	0	1
US	1	0	5	1	4	17	5	2	1	10	6	0	1	1	9	17	0	2	1	3	7	5	0	6	0	1	2	3	7	0	0	0	0	2	2	2	3	2		1	129
Total	23	7	29	28	52	38	51	11	12	75	28	8	52	5	57	79	11	10	8	6	49	49	3	19	2	12	10	33	20	5	1	1	3	29	7	7	30	7	215	10	1,100

Appendix 2: Variable Descriptions

(i) Abnormal bond returns

Abnormal bond returns are the sum of daily abnormal bond returns over a matched benchmark index in the days [-5,+5] surrounding M&A announcements. Firms with multiple bonds are treated as value-weighted portfolios, where the weights are the market values of each bond two months before the deal announcement. Each benchmark index is segmented by currency (euro, pound sterling, or US dollar), credit rating (BBB, A, AA, and AAA) and duration (1-3, 3-5, 5-7, 7-10, and 10+ years). If a benchmark has less than seven bonds, a reserve benchmark is used with a duration of 1-5 or 5+ years. Value-weighted benchmarks are constructed using weights based on each bond's market value. Bond ratings are from Standard and Poor's or, when unavailable, Moody's Investors Service. Source: *Thomson Reuters Eikon.*

(ii) Firm-level variables

Deal size (target/bidder) is the target firm's book value of assets divided by the bidding firm's book value of assets. It is measured at the fiscal year-end preceding the deal announcement and converted into euro where applicable. Source: *Amadeus, CapitalIQ, Datastream, Orbis, Worldscope, Zephyr*.

Return on assets (ROA) is earnings before interest and tax divided by the book value of assets. It is measured at the fiscal year-end preceding the deal announcement. Source: *CapitalIQ, Worldscope, Zephyr.*

Leverage is the book value of debt divided by the book value of assets. It is measured at the fiscal year-end preceding the deal announcement. Leverage in the combined firm is calculated using weights based on the book value of assets, converted into euro where applicable. For missing values industry averages are used. Source: *Amadeus, CapitalIQ, Datastream, Orbis, Worldscope, Zephyr*.

Asset risk is the standard deviation of unlevered daily stock returns. Unlevered stock returns are defined as the product of stock returns and (1 – leverage). The standard deviation of unlevered stock returns is computed over days [-750,-30] before deal announcements. Source: *Datastream, Worldscope*.

Bidder has creditor-shareholder is a dummy variable equal to one if the bidder has a creditor (bank or other financial institution) among its major shareholders. Source: *Amadeus, Orbis, SDC*, *Zephyr*.

(iii) Country-level variables

Creditor rights (max=4) captures the number of laws protecting creditors from expropriation by more senior secured creditors. First, there are restrictions, such as creditor consent or minimum dividends, for a debtor to file for reorganization. Second, secured creditors are able to seize their collateral after the reorganization petition is approved, i.e. there is no "automatic stay" or "asset freeze." Third, secured creditors are paid first out of the proceeds of liquidating a bankrupt firm, as opposed to other creditors such as the government or employees. Finally, management does not retain administration of its property pending the resolution of the reorganization. Source: *Djankov et al. (2007)*.

Claims enforcement captures the efficiency of claims disputes resolution through courts, It is the number of calendar days needed to enforce a contract of unpaid debt worth 50% of a country's GDP per capita. Source: *Djankov et al. (2007).*

Anti-director rights (max=7) captures the laws that mandate provisions protecting minority shareholders from expropriation by managers or majority shareholders. The provisions include the right to an oppressed minority mechanism to seek redress in case of expropriation, voting rights, and rights to call a special shareholder meeting. Source: *Djankov et al. (2008).*

Rule of law index (max=5) aggregates several indicators that measure how well agents abide by the rules of society. These include perceptions of the incidence of crime, the effectiveness and predictability of the judiciary and the enforceability of contracts. Source: *World Bank Worldwide Governance Indicators*.

Legal origin is a dummy variable that identifies the legal origin of each country. The five origins are English, French, German, Nordic and Socialist. Source: *Djankov et al. (2007).*

Appendix 3: Correlation Matrix

	Creditor rights better in target	Claims enforcement better in target	Anti-director rights better in target	Rule of law better in target	Diversifying	Successful	Target listed	Cash or mixed	Tender offer	Hostile	Deal size > median	Leverage combined firm > bidder	Bidder has creditor-shareholder	Bidder is common law	Target is common law
Creditor rights better in target	1														
Claims enforcement better in target	-0.012	1													
Anti-director rights better in target	0.243	0.200	1												
Rule of law better in target	0.323	-0.043	-0.020	1											
Diversifying	0.009	-0.019	-0.070	0.049	1										
Successful	-0.041	-0.018	-0.007	0.033	-0.021	1									
Target listed	0.032	-0.057	0.050	0.037	-0.139	-0.227	1								
Cash or mixed	0.026	-0.008	-0.007	-0.007	0.022	0.021	-0.150	1							
Tender offer	0.011	-0.035	-0.022	0.022	-0.007	-0.024	0.393	0.088	1						
Hostile	0.040	-0.021	-0.022	0.031	-0.037	-0.046	0.106	-0.003	0.131	1					
Deal size > sample median	-0.015	0.004	-0.051	-0.007	-0.005	-0.077	-0.115	0.031	-0.077	0.022	1				
Leverage combined firm > bidder	0.019	-0.035	0.016	0.005	0.058	0.011	-0.191	-0.045	-0.097	0.021	0.134	1			
Bidder has creditor-shareholder	0.025	0.061	-0.023	0.081	-0.027	0.026	-0.029	-0.012	0.058	-0.009	-0.009	0.044	1		
Bidder is common law	-0.026	-0.331	-0.134	-0.085	0.096	-0.002	-0.017	0.042	0.016	0.016	0.008	-0.043	-0.003	1	
Target is common law	0.010	0.033	0.183	0.179	0.062	0.023	0.004	0.021	0.007	-0.037	0.070	0.029	-0.034	0.101	1

Chapter 3

Cross-Border Acquisitions and Employee Relations

with Hao Liang and Luc Renneboog

Abstract – Using novel firm-level data on employee relations in an international sample of M&A deals, we find that shareholders react positively to an acquirer's provision of employee-friendly policies around domestic acquisitions, but negatively in cross-border acquisitions. These effects are primarily driven by the provision of monetary incentives, and cannot be explained by country-level labor regulations or by target-level employee relations, and are concentrated on the acquirer's returns rather than the target's returns. Our findings suggest that acquirer shareholders view treating employees well favorably, as this can potentially reduce labor adjustment costs during a firm's reorganization, but they dislike such generous employment benefits in cross-border acquisitions when uncertainties regarding post-merger integration are high.

Keywords: employee relations, labor protection, monetary incentives, takeovers, cross-border mergers and acquisitions.
JEL Classifications: G34, M14, J2

1. Introduction

Cross-border merger and acquisition (M&A) volume has boomed over the past 20 years—from 23% of the total deal value in 1998 to more than 50% of total value in 2016—with some individual transaction values being close to that of a small country's GDP.[42] Cross-border acquisitions enable firms to expand their boundaries across national borders and provide new sources of value creation resulting from cross-country differences in product markets (DeGiovanni, 2005), regulations and governance standards (Bris and Cabolis, 2008; Chari, Ouimet, and Tesar, 2010), taxation regimes (Huizinga and Voget, 2009), currencies (Erel, Liao, and Weisbach, 2012), industry specialization (Frésard, Hege, and Phillips, 2017), and degree of development of the financial system (Alquist, Mukherjee, and Tesar, 2014). However, cross-country takeover also induce significant frictions that reduce merger gains. Indeed, recent studies have attempted to explain the marked differences in merger gains between domestic and cross-border takeovers using factors such as language and cultural distance (Ahern, Daminelli, and Fracassi, 2015), economic nationalism (Dinc and Erel, 2013), geography and bilateral trade (Erel et al., 2012), investor protection and corporate governance (Rossi and Volpin, 2004; Bris and Cabolis, 2008), as well as government ownership (Karolyi and Liao, 2017). Despite these frictions and the related negative announcement returns to the acquirers, companies worldwide are increasingly acquiring abroad.

A widely recognized yet largely unexplored friction related to cross-border acquisitions is the significant risks and difficulties in post-merger integration, especially with regard to integration of employees (e.g., Datta, 1991). Employees are crucial to the firm's performance: they are involved in the firm's daily operations and have contractual claims on the company in the form of salaries and bonuses. Their relations with the firm are believed to be one of the most important determinants of returns around M&As, as M&As involve restructuring, integrating, and reconfiguring the firm's workforce with the aim of reducing costs and profiting from larger economies of scale and scope (Maksimovic, Phillips, and Prabhala, 2011). A growing literature on employees and labor markets as a source of friction focuses on how country- or state-level employment protection regulations and union forces can affect merger synergies and the efficiency of

[42] For example, the 2016 deal between the German drug company Bayer and US-based Monsanto was valued at $66 billion, which Bayer clinched with improved $66 billion bid, exceeding the 2015 GDP of Luxembourg ($57.8 billion), Source: Reuters, Sep. 15th 2016. http://www.reuters.com/article/us-monsanto-m-a-bayer-deal-idUSKCN11K128.

integration, concluding that stronger employment protection reduces takeover activity and merger synergies (John, Knyazeva, and Knyazeva, 2015; Tian and Wang, 2016; Dessaint, Golubov, and Volpin, 2017; although the opposite is found by Alimov (2015)). However, labor market regulation and employment protection can only set the lower bound regarding the treatment of employees in the context of M&As, and do not paint a complete picture of the supply and the demand for employee welfare at the firm level. Arguably, a more significant part of the labor effect may result from the firm's *own* investment in implementing employment policies and incentivizing employees, over and beyond the regulatory requirements.

Motivated by the increasing recognition of labor and human capital's importance in M&As and the lack of firm-level evidence on employee relations, this paper focuses on how a firm's treatment of its employees—voluntary policies and practices that aim to enhance a firm's human capital and employee relations by providing higher compensation and job security—differentially affects value generation in domestic and cross-border takeovers. Although some recent studies investigate firm-level labor relations (Pagano and Volpin, 2005; Cronqvist et al., 2009; Masulis, Wang, and Xie, 2016), they mostly focus on the agency aspects of investing in employee relations i.e., the detrimental effect of manager-employee alliances on shareholder value. Moreover, they are limited to samples of US firms, in which the roles of labor during the reorganization process are different from the rest of the world (Atanassov and Kim, 2009). To date, there is little evidence on the effect of firms' voluntary investment in employee relations on deal performance on a global scale.

The lack of research is partially due to the lack of data with detailed information on firm-level investment in employee relations, especially in a multi-country context. We utilize a newly assembled global dataset on firm-level corporate investment in employee-related issues to investigate how cross-firm heterogeneity in employee relations (that is distinct from country-level labor regulations) translates into short- and long-run firm performance when conducting domestic and foreign acquisitions. Underlying our empirical investigation is the recognition that acquirers usually experience negative market reactions due to market frictions such as overbidding (Eckbo, 2009) and expensive labor adjustment costs (Antanassov and Kim, 2009; Ghaly, Dang, and

Stathopoulos, 2017),[43] resulting in great uncertainties about the success of post-merger integration. However, treating employees well and providing generous employment benefits can—even prior to the merger—reduce some of these costs and increase investors' beliefs about post-merger integration success. This can happen because the acquirer avoids the large costs associated with dissatisfaction and replacement of its own employees during the post-merger integration process, and because target employees can also benefit from the acquirer's employee friendly culture, smoothing the integration process. Nevertheless, investors of acquiring firms may be concerned with their management offering generous employment benefits when the uncertainties regarding post-merger integration are high, which is *a key issue in cross-border M&A deals*. Consequently, acquirer shareholders perceive generous policies as a waste of money and outweigh their costs, which may result in negative shareholder reactions around cross-border M&A deals, despite target employees welcoming these policies.

What frictions may arise in cross-border deals that affect the returns to shareholders and firm value when investing in employee relations?[44] Obviously, managing the integration of employee policies in different national, cultural, and organizational contexts is likely to create a host of uncertainties (Aguilera and Dencker, 2004). In addition, in most jurisdictions, a buyer of a firm cannot legally change the human capital employed at a target company nor can it change the contracts that a target firm has adopted, which limits its ability to implement and integrate its own employment policies in the target firm.[45] We therefore argue that, although acquirer shareholders

[43] The notion of labor adjustment costs was raised by Dixit (1997), who argues that a firm cannot adjust its labor demand costlessly. That is, when a firm adjusts its labor demand, it incurs the costs of firing, search, selection, hiring, and training, as well as costs associated with productivity losses. This labor market friction leads the firm to have the incentive to minimize its labor turnover.

[44] A notable example, albeit not in the context of M&As, is the recent frustration of the greenfield investment in the US by the Chinese company Fuyao Glass Industry Group. Motivated by lower manufacturing costs, Fuyao entered into the US and invested in General Motors' abandoned plants in Ohio State. But the Chinese company soon faced a strong culture clash with its workforce as many workers questioned the company's commitment to operating under American supervision and American norms. The Chinese company faced an acrimonious union campaign by the United Automobile Workers, endless complaints by US employees regarding unfair treatment in paid time-off, and a lawsuit by a former US manager, in spite of a favorable stock market reaction when Fuyao announced its US investment plan in 2014. For detailed description, see: "Culture Clash at a Chinese-Owned Plant in Ohio." *New York Times*, June 10, 2017. https://www.nytimes.com/2017/06/10/business/economy/ohio-factory-jobs-china.html.

[45] For example, a sale of a firm triggers the "transfer of undertakings protection of employment" (TUPE) regulations of 1981, which stems from the European Acquired Rights directive. This regulation states that "all the [seller's] rights, powers, duties and liabilities under or in connection with [an employee's contract of employment], shall be transferred to the [buyer]." Furthermore, the buyer assumes the liability for "anything done before the transfer is completed by or in relation to the [seller] in respect of that contract

view treating employees well favourably as it can reduce labor adjustment costs and enhance firm performance in domestic takeovers, these shareholders may view such generous employment benefits negatively in a cross-border acquisition, where uncertainties about post-merger workforce integration are systematically higher.

Based on a global sample of 2,363 acquiring firms from 48 countries engaging in 4,565 M&A deals, we find that there is considerable heterogeneity in *firm-level* policies of and investment in employee relations that are distinct from state-imposed country-level labor regulations. We show that the acquirer's employee treatment in terms of monetary benefits and job security is positively related to the takeover deal's announcement returns and long-term performance when acquiring a domestic target, but that this effect reverses when acquiring a foreign target. A one-standard deviation increase in industry-adjusted investment in employee relations results in a 22 basis points increase in CARs in domestic deals, but a 43 basis points decrease in cross-border deals.[46] This finding holds even after controlling for cross-country differences in labor regulations and other macroeconomic factors, as well as acquirer-level fixed effects in a sample of firms that acquire both domestically and internationally, indicating that our results are not driven by time-invariant acquirer characteristics. In addition, we show that this finding stems neither from the fact that cross-border deals on average destroy value, as these deals have higher announcement returns than domestic deals, nor from other workforce-related dimensions (such as health and safety, workforce diversity, or training and development), but that it is mainly driven by the acquirer's (and not the target's) provision of generous employee benefits. Our results are also robust to a propensity score matching approach to control for observable deal, firm, country, and industry-level characteristics. Moreover, the results on long-run post-merger performance are in line with those from the CARs estimations. We also show that our findings are mainly driven by the acquirer's investment in pecuniary incentives and monetary compensation, and less so by factors representing job security factors such as employment retention and trade union relations, consistent with human relations theories (Herzberg, 1959; 1964; 1966).

or a person employed in that undertaking or part" (Calcagno and Renneboog, 2007). TUPE states that such an act "shall be deemed to have been done by or in relation to the [buyer]."

[46] These effects are economically significant as three-day acquirer CARs range between -50 and +50 basis points, on average.

We explore a few potential channels through which labor-related frictions in cross-border acquisitions may account for the relationship between firm-level employee treatment and deal performance. We show that factors such as acquisition experience and some characteristics of the workforce can reduce labor-related frictions in cross-border deals. The negative correlation is weaker when the acquirer has takeover experience in the target's country, when social security laws and economic nationalism in the target's country are low, when strong labor unions in the acquirer's and target's countries are absent, and when both parties are in low-tech industries.

We further show that, for a subsample of deals for which we have both acquirer- and target-level data on employee relations, our results are not likely to be driven by the target's, but rather by the acquirer's level of investment in employee relations. These effects concentrate in the acquirer's CARs instead of in the target's CARs, indicating that our results are not driven by a value redistribution effect. We also rule out a host of alternative explanations including the levels of or differences in country-level labor regulations, firms' decisions to engage in a domestic or cross-border M&A, geographical distance between acquirer and target, differences in their countries' economic development, the target employees' receptiveness towards job security incentives, or a back-firing effect of an acquirer over-investing in employee relations. Our results are robust to a propensity-score matching approach, to excluding serial acquirers, excluding targets from developing countries, and to excluding US acquirers from the sample.

Of course, these results should be interpreted with caution. We do not claim that what drives the effect of employee relations is simply whether the target is domestic or foreign. Arguably, there are many frictions such as regulatory and cultural differences that may shape how a firm employs, transfers, and integrates its human capital during its reorganization, which we have tried to take into account in our analyses using various control variables and fixed effects. Instead, our findings highlight the importance of firm-level treatment of employees to explain the marked differences in deal performance and shareholder value redistribution between domestic and cross-border M&As around the world.

2. Data and Method

2.1 Data

We measure a firm's employee relations using data from Thomson Reuters' ASSET4 Environmental, Social, and Corporate Governance (ESG) database. This firm-level database provides information and ratings on firms' practice on social, corporate governance, economic, and environmental issues ("pillars") and covers more than 4,000 companies worldwide, including the members of the S&P 500, Russell 1000, NASDAQ 100, MSCI Europe, FTSE 250, ASX 300, STOXX 600, the MSCI World Index, and the MSCI Emerging Market, index since 2002. The ASSET4 data is obtained from publicly available sources such as annual reports, 10-K statements, and CSR reports. The ASSET4 ratings consist of more than 750 ESG sub-dimensions (data points). Every data point results from a multi-step verification process, including a series of data entry checks, automated quality rules, and historical comparisons. Each data point is constructed by means of more than 280 key performance indicators and are rated as both a normalized score (0 to 100, with 50 as the industry mean) and the actual computed value. The equally-weighted average is then normalized by ASSET4 so that each firm is given a score relative to the performance of all firms in the same industry around the world. All ratings are provided on a yearly basis. For all companies, at least three years of history are available, and most companies are covered from 2005 onward. Firms are rated on the basis of their ESG compliance (regulatory requirements) and their ESG engagement (voluntary initiatives). Therefore, the ESG ratings reflect a comprehensive evaluation of how a firm engages in stakeholder issues and complies with regulations.

Our main focus is on the variables related to the firm's workforce under the "social" ("S") pillar, in particular those describing the firms' commitment and effectiveness with regard to the provision of high-quality employment benefits and job security, which we label as *Employment Quality*. Employment Quality is an equally-weighted average of a set of underlying elements. It consists of measures of the firm's salary level, wage distribution, trade union relations, bonus plans for at least middle management, fringe benefits such as health insurance provision, employment awards, employment creation, personnel turnover, lay-offs, management departures, strikes, job security policies, and employment controversies in the media such as strikes. This way we can test the importance the aggregate measure of employment quality, but also go one level deeper and test the monetary incentive factors as well as job security factors on shareholder

returns around M&A announcements. As employment quality is the main empirical proxy for an acquirer's employee relations, we use these two terms interchangeably throughout the paper.

The *Employment Quality* score is, as are all other ESG scores mentioned above, normalized by ASSET4 such that each firm is given a z-score relative to the performance of all firms in the same industry. The normalization to a scale of 100 implies that, by construction, firms with scores higher than 50 perform above the median in terms of employee relations. These measures enable us to assess a firm's orientation towards employee issues relative to the industry benchmark, and provide us with a natural yardstick to gauge whether the firm excessively engages in employee relations. This way, we can compare corporate employee relations across firms with a similar demand for labor skills and operating in similar labor markets but with a different geographical focus in takeovers.

We obtain data on M&A deals from the SDC Mergers and Acquisitions database. In order to be included in our sample, the transactions should meet the following criteria: (1) the deal was announced between January 1st, 2002 and December 31st, 2014 and the SDC database contains detailed information on this transaction;[47] (2) the acquiring firm is publicly listed and its accounting and stock return data are available in Datastream; (3) the acquiring firm owns less than 50% of the target's shares before the offer and makes an offer with the intention to own more than 50% of the target's shares subsequent to a successful acquisition; (4) the acquiring firm has data available in ASSET4 for the fiscal year before the deal announcement; and (5) labor protection data for both the acquirer's and target's countries are available in the Botero et al. (2004) labor regulation indices.

Merging the information from ASSET4 with our sample of M&A deals from SDC results in a final sample of 4,565 deals by 2,009 acquiring firms from 48 countries. Of these deals, 2,550 (56%) are domestic and 2,015 (44%) are cross-border. The descriptions of our key variables are given in Appendix A. Appendix B shows the sample distribution by acquirer industry and year. The acquiring firms in our sample are mostly active in Business Services (10%), Trading (8%), and Banking (7%) industries.[48] Appendix C shows the sample distribution by acquirer country. Acquiring firms originate

[47] It is not meaningful to include the deals announced before 2002 as the ASSET4 coverage starts in 2002.
[48] To keep a sufficiently large number of observations, we do not exclude the financials and utilities industries. However, our conclusions remain unaffected after excluding these from the sample (results are available on request).

mainly from the US (27%), Japan (15%), and the UK (13%). In addition, Appendices D1 and D2 respectively offer an overview of our employee relations scores by country and industry.

2.2 Empirical Strategy

To assess shareholders' reactions to M&A announcements and thus draw inferences on shareholder value, we follow the convention and calculate cumulative abnormal stock returns (CARs) for the acquiring firm in the three days surrounding the deal announcement [-1,+1], where abnormal returns are defined as the difference between the firm's actual and expected returns. These expected returns are obtained from the market model estimated over a period starting 100 days before the announcement date until 30 days before this date: $R_{it} = \propto_i + \beta_i * R_{mt} + \varepsilon_{it}$, where R_{it} is the actual return for firm *i* on day *t,* and R_{mt} is the return on the primary stock market of the country in which the firm's headquarter is located.[49] The estimated coefficients enable us to calculate the returns expected for the case without a takeover offer. We then calculate the CARs by summing the abnormal returns in the three days around the announcement date. We necessarily focus on the acquiring firms' CARs because studying the combined CARs of both acquirers and targets makes us lose more than 80% of our sample (as the number of public target firms in our sample is limited). Similarly, we confine our analysis to the acquiring firms' employee relations as the availability of data for firm-level employee relations and stock information for target firms is also very limited (less than 10% of the sample).[50] Our core specification is:

$$Acquirer\ CAR\ [-1,+1]_i = \alpha_i + \beta_1 EmployeeRelations_{j,t-1} + \beta_2' X_{ij} + \beta_3' Lab.Reg.Index_c + \beta_4' \gamma + \varepsilon_i$$

where *Employee Relations$_{j,t-1}$* measures the acquiring firm's investment in employment quality in terms of monetary benefits and job security for the fiscal year prior to the deal announcement, and X_{ij} indicates a set of standard deal- and firm-level

[49] Our results are also robust to using a 250-day estimation window, ranging from 280 to 30 days before the announcement.

[50] We however perform an additional test for the subsample for which we have ASSET4 information for both target and acquirer in Table VII.

control variables including acquirer ROA, acquirer leverage, acquirer size, a serial acquirer dummy, relative deal size, and dummies for toeholds, multiple bidders, all-cash financed deals, hostile deals, diversifying deals, and public targets.

Lab. Reg. Index$_c$ is a set of four (target and/or acquirer) country-level labor regulation indices from Botero et al. (2004), which have been widely used in studies on the role of labor protection in corporate investment (e.g. Atanassov and Kim, 2009; Levine et al., 2015). These indices consist of (1) an employment laws index, which measures the protection of labor and employment contracts; (2) a collective relations laws index, which measures the statutory protection and power of labor unions as well as protection of workers during collective disputes; (3) a social security laws index, which measures social security benefits related to old age, disability, death, sickness, and unemployment; and (4) a civil rights index, which captures the degree of statutory protection of vulnerable groups against employment discrimination. As our goal is to examine the role of firm-level employee relations, it is important to control for these country-level labor regulation variables so as to disentangle the firm-level effects of (voluntary) labor-orientation from the effects resulting from country-level (mandatory) labor protection regulations.

Finally, γ is a set of year, acquirer- and target-industry fixed effects, and "acquirer-region × target-region" fixed effects that we include to further reduce concerns related to a potential omitted variable bias in the relationship between corporate employee relations and stock returns around M&A announcements.

In addition, we explore the potential mechanisms that account for the differential relations between employee relations and shareholder returns in domestic and cross-border deals by considering a set of sub-dimensional factors of our main *Employment Quality* score (e.g. monetary incentives such as bonus plans for at least middle management, fringe benefits such as health insurance, the wage ratio of employees/CEO, trade union relations policies, employment growth/loss, job security policies, etc.). We also interact these employee relations measures with country- and firm-level variables that capture labor-related frictions. Definitions of all variables are available in Appendix A.

3. Results

3.1 Descriptive Statistics

Panel A in Table 1 reports descriptive statistics for our main measure of firm-level employee relations for the acquiring firms in domestic and cross-border deals, respectively. Our main explanatory variable on firm-level employee relations is *Employment Quality* in terms of monetary incentives and job security. It is measured by means of industry-adjusted normalized scores (ranging from 0 to 100) and captures a firm's employee relations relative to its industry peers. In domestic deals, *Employment Quality* is close to the sample mean (of 50), whereas in cross-border deals, it is considerably higher than the sample mean. The difference of 9 points on a scale of 100 is both economically and statistically significant (Table I, Panel A).

The other variables shown in Panel A represent a set of sub-dimensional factors used to construct the *Employment Quality* score (see Appendix A for variable descriptions); in domestic deals, an average of 39% of the acquiring firms offer a bonus plan to their employees, 43% provide fringe benefits such as pension funds or health insurance, the average acquirer increased its workforce by 3.5% in the year prior to the acquisition, 18% of the acquiring firms has a policy in place for maintaining good relations with trade unions, and 6% of firms have policy to enhance job security. In contrast, acquirers engaging in cross-border deals are more likely to offer a bonus plan to their employees (48%), are more likely to have a policy for maintaining good relations with trade unions (32%), and are more likely to have a job security policy in place (11%).

Overall, these results suggest that firms conducting cross-border acquisitions are different from those conducting domestic acquisitions in terms of their relations with employees, and also appear to have above-average employee relations.

Table I. Descriptive Statistics - Acquirer

This table shows summary statistics for the variables used in our study for domestic and cross-border deals. Panel A shows descriptive statistics for the acquiring firms' labor orientation measure. Panel B shows a set of deal-level variables, including the acquirer's announcement returns. Panel C shows firm-level variables and Panels D and E show country-level labor regulation indices for the acquirer's and target's country, respectively. Continuous variables are winsorized at the 1st and 99th percentiles.

Variables	N	Mean	Median	St. Dev.	Min.	Max.	N	Mean	Median	St. Dev.	Min.	Max.	*Difference*
Domestic Deals							**Cross-Border Deals**						
Panel A: Labor Orientation Variables (Acquirer)													
Workforce Diversity Score	2,550	49.81	45.61	31.40	4.830	98.67	2,015	56.66	57.80	30.94	6.11	98.79	*-6.84****
Employment Quality Score	2,550	49.31	47.92	29.91	2.950	98.45	2,015	58.64	64.75	30.40	2.88	98.57	*-9.34****
Health and Safety Score	2,550	45.50	38.62	29.60	2.800	99.44	2,015	58.09	58.22	30.27	3	99.49	*-12.59****
Training & Development Score	2,550	47.97	45.29	31.25	5.160	97.40	2,015	61.66	72.34	29.49	5.16	97.39	*-13.69****
Bonus Plan (Dummy)	2,550	0.386	0	0.486	0	1	2,015	0.478	0	0.499	0	1	*-0.09****
Fringe Benefits (Dummy)	2,550	0.436	0	0.495	0	1	2,015	0.442	0	0.496	0	1	*-0.006*
Wage Ratio Empl./CEO	2,550	0.033	0.023	0.038	0.001	0.273	2,015	0.032	0.023	0.037	0.001	0.240	*0.001**
Net Employment Creation	2,550	0.035	0	0.339	-0.79	8.060	2,015	0.023	0	0.599	-0.65	25.61	*0.01*
Trade Union Relations Policy	2,550	0.176	0	0.381	0	1	2,015	0.316	0	0.465	0	1	*-0.14****
Job Security Policy	2,550	0.060	0	0.238	0	1	2,015	0.110	0	0.313	0	1	*-0.05****
Panel B: Deal-level Variables													
Acquirer CARs	2,550	-0.246	-0.219	4.275	-12.13	13.42	2,015	0.159	0.028	4.027	-12.13	13.42	*-0.41****
Public Target	2,550	0.193	0	0.395	0	1	2,015	0.147	0	0.354	0	1	*0.07****
Diversifying Deal	2,550	0.485	0	0.500	0	1	2,015	0.398	0	0.490	0	1	*0.09*
ostile Deal	2,550	0.009	0	0.0946	0	1	2,015	0.012	0	0.111	0	1	*-0.003*
ll-Cash Financing Deal	2,550	0.411	0	0.492	0	1	2,015	0.369	0	0.483	0	1	*0.04****
ultiple Bidders	2,550	0.033	0	0.177	0	1	2,015	0.041	0	0.199	0	1	*-0.01*
oehold Stake	2,550	0.154	0	0.361	0	1	2,015	0.106	0	0.308	0	1	*0.05****
Relative Deal Size	2,550	0.169	0.032	0.007	0	3.28	2,015	0.159	0.021	0.604	0	20.07	*0.01*
Panel C: Firm-level Variables													
Acquirer Leverage	2,550	0.443	0.406	0.257	-0.005	1.000	2,015	0.429	0.388	0.253	0.001	1.000	*0.01**
Acquirer ROA	2,550	0.110	0.0986	0.105	-0.972	2.209	2,015	0.127	0.118	0.093	-0.60	0.645	*-0.02****
Serial Acquirer	2,550	0.217	0	0.412	0	1	2,015	0.300	0	0.458	0	1	*-0.08****
Acquirer Total Assets (USD Mil)	2,550	38,906	6,925	123,507	249.9	1,107,776	2,015	65,855	8,733	186,560	249.9	1,107,776	*-35,010****
Acquirer Market Cap. (USD Mil)	2,550	15,587	5,464	22,499	187.1	224,875	2,015	20,902	7,674	34,182	187.1	224,875	*-5,314****
Panel D: Country-level Variables (Acquirer)													
Employment Laws Index	2,550	0.318	0.218	0.180	0.161	0.828	2,015	0.411	0.282	0.216	0.161	0.828	*-0.09****
Collective Relations Laws Index	2,550	0.382	0.259	0.174	0.188	0.711	2,015	0.410	0.384	0.178	0.188	0.711	*-0.03****
Social Security Laws Index	2,550	0.678	0.646	0.0868	0.177	0.873	2,015	0.702	0.692	0.092	0.177	0.873	*-0.02****
Civil Rights Index	2,550	0.685	0.733	0.0997	0.233	0.850	2,015	0.660	0.733	0.119	0.233	0.850	*0.02****
Panel E: Country-level Variables (Target) – Cross-Border Only													
Employment Laws Index							2,015	0.437	0.403	0.201	0.148	0.828	
Collective Relations Laws Index							2,015	0.400	0.378	0.155	0.188	0.711	
Social Security Laws Index							2,015	0.679	0.692	0.135	0.105	0.873	
Civil Rights Index							2,015	0.667	0.733	0.125	0.233	0.933	

Panel B reports descriptive statistics for deal-level characteristics, starting with the acquirer's CARs over the window [-1, 1]. Consistent with findings in the literature, acquirer shareholders in domestic deals do not gain from M&A deals: the mean and median CARs are -25 and -22 basis points, respectively. About 41% of our sample consists of cross-border deals, and in these deals acquirer shareholders earn positive mean and median returns of 16 and 3 basis points, respectively. Although shareholders of acquirers conducting cross-border deals earn more positive returns on average, the median return is close to zero. Cross-border acquirers are less likely to acquire public targets, make all-cash offers, and acquire toehold stakes. Cross-border deal values are comparable to domestic deal values (16% of the acquirer's market capitalization in cross-border deals and 17% in domestic deals).

The firm-level variables in Panel C show that firms acquiring domestically are comparable to firms acquiring cross-border targets in terms of leverage and profitability (as, although the difference in means is statistically significant, it is economically small), but are smaller in size and are less likely to be serial acquirers.[51] Panels D and E compare the acquirer's and target's country-level labor protection indices: acquiring firms in domestic deals tend to be located in countries with slightly lower protection in terms of employment, collective relations, and social security, but with stronger civil rights than acquiring firms in cross-border deals. Also, targets in cross-border deals have a higher employment laws index than acquirers in domestic deals. These statistics are consistent with Alimov (2015).

We can derive some interesting insights from our descriptive statistics: compared to acquirers in domestic deals, those engaging in cross-border deals have on average more generous employment policies at the firm-level, and their deals also earn higher announcement returns compared to domestic acquirers. However, they also differ on a number of deal-, firm-, and country-level characteristics. It is thus not clear whether the higher announcement returns in cross-border deals are causally related to better employee relations, which as we will show below, is in fact not likely the case.

[51] A serial acquiring firm is defined as a firm engaging in more than 10 takeover deals across our sample period. Alternatively, when we define serial acquirers as firms engaging in more than two takeover deals per year, our conclusions are not affected. A relatively large number of deals—they make up 25% of our sample—involve serial acquiring firms.

Table II. Descriptive Statistics – Target

This table shows summary statistics for the variables used in our study for domestic and cross-border deals. Panel A shows descriptive statistics for the target firms' labor orientation measure. Panel B shows a set of deal-level variables, including the target's announcement returns. Panel C shows firm-level variables and Panel D shows country-level labor regulation indices target's country. Continuous variables are winsorized at the 1st and 99th percentiles.

Variables	N	Mean	Median	St. Dev.	Min.	Max.	N	Mean	Median	St. Dev.	Min.	Max.	*Difference*
Domestic Deals							**Cross-Border Deals**						
Panel A: Labor Orientation Variables (Acquirer)													
Workforce Diversity Score	202	52.98	50.00	30.17	8.260	97.35	160	58.63	58.43	28.12	10.21	97.94	*-5.65**
Employment Quality Score	202	54.42	59.34	29.83	3.520	97.78	160	62.36	70.76	28.79	3.330	97.81	*-7.94***
Health and Safety Score	202	48.89	44.13	28.87	10.23	98.99	160	59.65	59.77	28.60	10.57	98.84	*-10.75****
Training & Development Score	202	55.01	63.28	30.98	5.200	96.58	160	60.28	73.57	30.45	5.190	96.45	*-5.27*
Panel B: Deal-level Variables													
Target CARs	202	6.307	3.185	12.02	-41.00	53.12	160	7.386	2.491	12.54	-12.48	55.21	*-1.08*
Weighted CARs	202	1.321	0.524	4.014	-5.140	12.15	160	1.166	0.541	3.729	-5.140	12.15	*0.15*
Panel C: Firm-level Variables													
Target ROA	202	0.301	0.0998	1.533	-6.680	10.63	160	0.299	0.110	1.426	-2.540	12.23	*0.002*
Relative Deal Size	202	0.699	0.553	0.604	0.00237	3.278	160	0.461	0.301	0.604	0.001	4.930	*0.24****
Target Total Assets (USD Mil)	202	29,567	6,985	60,273	48.10	289,603	160	25,006	5,661	57,277	89.30	289,603	*4,561*
Target Market Cap. (USD Mil)	202	6,805	6,314	9,070	1.574	40,967	160	6,359	3,661	7,647	1.574	40,967	*446*
Panel D: Country-level Variables (Target)													
Employment Laws Index	202	0.324	0.218	0.182	0.164	0.809	160	0.394	0.282	0.200	0.164	0.828	*-0.07****
Collective Relations Laws Index	202	0.343	0.259	0.161	0.188	0.667	160	0.349	0.259	0.159	0.188	0.667	*-0.006*
Social Security Laws Index	202	0.678	0.646	0.0677	0.400	0.873	160	0.704	0.692	0.0741	0.400	0.873	*-0.03****
Civil Rights Index	202	0.685	0.733	0.0918	0.461	0.807	160	0.654	0.692	0.109	0.500	0.850	*0.03****

We also show similar descriptive statistics for target firms in Table II, but only for the small subsample for which employee relations data (*Employment Quality* score) are available, as ASSET4 mostly covers large firms included in the major global equity indices. Again, target firms' *Employment Quality* score is higher for cross-border deals than for domestic deals.

Consistent with the M&A literature, target firms also enjoy positive announcement CARs, which are higher for cross-border deals. Targets are smaller in size compared to acquirers, but they are more profitable. The relative deal size is much larger in this small subsample compared to the full sample in Table I, which is of course due to ASSET4 only covering large publicly-listed firms. Overall, the descriptive statistics in Tables I and II indicate that there are substantial differences in employee relations and firm characteristics between acquirers and targets, and between domestic deals and cross-border deals.

3.2 Employee Relations and Shareholder Returns in Domestic and Cross-Border Takeovers

We now formally test the relation between firm-level employee relations and acquirer returns. As we argue above, a firm's treatment of its employees can reduce labor adjustment costs, which is perceived favorably by its investors. However, investors' perception can be reversed when an acquisition takes place across national borders, which increases uncertainty about post-merger workforce integration.

In contrast to domestic deals, cross-border deals face additional risks and labor adjustment costs resulting from the transfer and integration of employment policies across borders. We test this hypothesis in Table III, where we consider two subsamples for domestic and cross-border deals in Panel A, and interact a cross-border deal dummy with the firm's *Employment Quality* score on the full sample in Panel B. Using these two types of models enables us to include different types of fixed effects that would otherwise absorb, for example, the cross-border deal indicator. All models include the firm- and deal-level controls specified in Section II (acquirer ROA, leverage, market capitalization, a serial acquirer indicator, relative deal size, and dummies for toeholds, multiple bidders, all-cash financed deals, hostile deals, diversifying deals, and public targets), along with acquirer and target country-level labor protection indices or country fixed effects, and year, acquirer- and target-industry, and acquirer region by target region fixed effects.

Table III. Employment Quality and Announcement CARs

This table shows regression results where the dependent variable is the acquirer's three-day CAR around an M&A announcement for subsamples of domestic and cross-border deals (Panel A), or for the combined sample (Panel B). The main independent variable is the acquirer's pre-merger employment quality score in terms of job security and monetary benefits (0-100), interacted with a cross-border deal dummy in Panel B. All specifications include a set of deal- (dummies for serial acquirers, toeholds, multiple bidders, all-cash financed deals, hostile deals, diversifying deals, and public targets, and the relative deal size), firm- (acquirer ROA, market cap., and leverage), and acquirer and target country-level (labor protection indices as in Botero et al., 2004) control variables or acquirer and target country fixed effects. In addition, each specification includes year, acquirer industry, target industry fixed effects, along with acquirer by target region fixed effects (Panel A, Model 5 and Panel B, Model 2), acquirer and target country fixed effects (Panel A, Model 4 and Panel B, Model 3), acquirer country by target country fixed effects (Panel A, Model 5 and Panel B, Model 4), or acquirer firm fixed effects (Panel B, Models 5 and 6). Model 5 in Panel B includes the full sample of acquirers; Model 6 in Panel B only includes acquirers that engage in both domestic and cross-border deals. Robust standard errors are reported in parentheses, and standard errors are clustered at the acquirer by target industry level. *, ** and *** stand for statistical significance at the 10%, 5%, and 1%, respectively.

Panel A: Subsamples	Domestic		Cross-Border			
Dep.Var.: Acquirer CAR [-1,+1]	(1)	(2)	(3)	(4)	(5)	(6)
Acquirer Employment Quality$_{t-1}$	0.008**	0.007**	-0.009**	-0.010***	-0.009*	-0.008**
	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.005)
Observations	2,550	2,550	2,015	2,015	2,015	2,015
Adj. R-squared	0.075	0.087	0.058	0.117	0.116	0.363
Firm and Deal Level Controls	Yes	Yes	Yes	Yes	Yes	Yes
Acquirer & Target Country Level Controls	Yes	No	Yes	No	No	No
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Acquirer and Target Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Acquirer and Target Country FE	No	Yes	No	Yes	No	No
Acquirer Region x Target Region FE	No	No	No	No	Yes	No
Acquirer Country x Target Country FE	No	No	No	No	No	Yes
Panel B: Full Sample						
Dep.Var.: Acquirer CAR [-1,+1]	(1)	(2)	(3)	(4)	(5)	(6)
Acquirer Employment Quality$_{t-1}$	0.006**	0.006*	0.005*	0.006*	0.012**	0.001
	(0.003)	(0.003)	(0.003)	(0.003)	(0.005)	(0.006)
Acquirer Employment Quality$_{t-1}$ × Cross-Border	-0.013***	-0.014***	-0.012***	-0.012**	-0.014**	-0.014**
	(0.004)	(0.004)	(0.004)	(0.004)	(0.006)	(0.007)
Cross-Border	1.176***	1.137***	1.143***		1.129**	1.083**
	(0.294)	(0.312)	(0.307)		(0.446)	(0.472)
Observations	4,565	4,565	4,565	4,565	4,565	2,363
Adj. R-squared	0.037	0.067	0.063	0.161	0.054	0.078
Firm and Deal Level Controls	Yes	Yes	Yes	Yes	Yes	Yes
Acquirer & Target Country Level Controls	Yes	Yes	No	No	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Acquirer and Target Industry FE	Yes	Yes	Yes	Yes	No	No
Acquirer Region x Target Region FE	No	Yes	No	Yes	No	No
Acquirer Country FE	No	No	Yes	No	No	No
Target Country FE	No	No	Yes	No	Yes	Yes
Acquirer Country x Target Country FE	No	No	No	Yes	No	No
Acquirer Firm FE	No	No	No	No	Yes	Yes

Models (1) and (2) in Panel A indicate that a higher level of employment quality in terms of monetary incentives and job security is positively related to shareholder returns around domestic deal announcements. This is consistent with the notion that providing high-level incentives can reduce labor adjustment costs during the firm's reorganization process and is viewed favorably by shareholders. We find that the effect reverses in cross-border deals, consistent with our conjecture that the provision of generous employment benefits may be viewed unfavorably by shareholders when there is considerable uncertainty about post-merger integration across national borders. In Models (3) through (6), we consistently find that higher levels of employment quality are negatively related to CARs. Importantly, we find that this effect is not eroded by the inclusion of acquirer region-by-target region or even acquirer country-by-target country fixed effects. This suggests that the effect is not driven by, for example, time-invariant agreements or capital flows between a pair of countries or differences in labor regulations between a pair of countries.

In Panel B, we consider the full sample of deals, and interact *Employment Quality* with a cross-border deal indicator. The results in Models (1) through (6) are consistently in line with those in Panel A: better employee relations in the acquiring firm are positively related to announcement CARs in domestic deals, but negatively in cross-border deals. These models also consistently show that cross-border deals earn higher CARs, in line with findings in the extant literature (e.g., Doukas and Travlos, 1988; Chari, Ouimet and Tesar, 2010). Importantly, we find that our results hold after controlling for acquirer and target country fixed effects (Model (2)), acquirer region by target region fixed effects (Model (4)), and even acquirer firm fixed effects (Models (5) and (6)). The former two specifications indicate that our results are unlikely to be driven by acquirer or target level labor regulations. Whereas Model (5) includes acquirer fixed effects for the full sample, Model (6) only considers acquirers that engaged in both domestic and cross-border acquisitions over the sample period. Notably, the finding that the negative effect in cross-border deals holds even in Model (6) suggests that our results are not likely to be driven by time-invariant acquirer characteristics, i.e., acquirers treating employees well and acquiring domestically may be inherently different from those that acquire internationally. In terms of economic significance, a one standard deviation increase (+ 30) in the acquirer's score on *Employment Quality* is associated with an increase in CARs of 0.18% (18 bps) in domestic deals, but the increase in returns around cross-border

deals drops from 1.14% to 0.90% (a 24 bps decrease) in Model (4). Combining these results, we can conclude that, despite the summary statistics in Table I indicating that cross-border acquirers have higher levels of employee relations and experience on average higher announcement returns, these higher returns are unlikely to result from the acquirer's better treatment of its employees. Instead, acquiring across national borders induces concerns for shareholders regarding labor-related frictions and uncertainty, which is priced by the stock market around such deals.

It is important to note that we control in all specifications for labor regulations in the acquirer's and—in cross-border deals—also the target's country, in addition to acquirer region by target region fixed effects. In line with Dessaint et al. (2017), we find that in domestic deals a country's labor laws regarding employment regulation (which to a large extent measures the labor rigidity faced by a firm) are negatively related to announcement returns.[52] However, the inclusion of country-level labor regulation indices does not erode the significance of our firm-specific employment quality score. This suggests that government-imposed labor protection regulations are not perfect substitutes for voluntary employment policies at the firm level.

In addition, the signs and significance for our other control variables are comparable to those found in the literature (e.g. Lin, Officer, and Zou, 2011): acquiring a public target negatively affects the returns to shareholders, whereas most firm-level characteristics and the financial performance of acquirers do not seem to play a significant role in driving the acquirer's own returns. In our robustness tests, we additionally control for, and interact our *Employment Quality* variable with the acquirer's and target's country GDP and GDP per capita, as well as other country-level characteristics. None of these controls affects the significance of our measure of employee relations.

3.3 Unbundling Employee Incentives

Next, we investigate the mechanisms underlying our above-documented effects of employee relations. Our aim is to disentangle different dimensions of an acquiring firm's provision of employment benefits and how these are viewed by shareholders (i.e., which aspects of employee relations matters). As documented both theoretically (Herzberg et al., 1959) and empirically (Edmans, 2011), employees are motivated most by the

[52] To save space, these control variables are not reported in Table III. Appendix G reports the full results (including control variables) for Panel B in Table III.

provision of monetary incentives. Such incentives may augment their productivity and loyalty, and thus reduce labor adjustment costs, which may in turn be reflected in shareholder value. Therefore, our results are expected to be mainly driven by factors related to the provision of monetary incentives.

To test this hypothesis, we dig deeper into the ASSET4 database and we decompose *Employment Quality* into two broad categories capturing employees' monetary incentives (including fair salaries, bonus plans, and other fringe benefits such as health insurance) on the one hand and job security incentives (including growth in the workforce, trade union relations, and the presence of a job security policy) on the other hand. The former set of incentives represent how much the firm values the specificity of human assets (Williamson, 1981) by linking compensation to firm performance, providing a fair wage, attracting talented employees, and encouraging diligence. The latter set of incentives is directly related to employee loyalty and commitment and is thus a more direct measure of the employment insurance dimension of employee relations.[53] They represent the collective governance of human assets which are not necessarily employee-specific, and may not directly translate into superior labor productivity (Williamson, 1981).

We test these decomposed employee relations measures in Table IV. In Panel A, we consider three forms of monetary incentives: (i) the provision of a bonus plan to at least middle management (*Acquirer Bonus Plan Dummy*), (ii) the provision of fringe benefits such as pension funds and health insurance (*Acquirer Fringe Benefits Dummy*), and (iii) the wage ratio of the average worker's salary and the CEO's income (*Acquirer Wage Ratio Employees/CEO*).[54] We include the latter based on the argument that a smaller wage gap is likely to increase employees' perception of being paid a fair wage, which may increase their retention and productivity. As before, we interact these monetary incentive variables with the cross-border indicator.

[53] This classification conceptually matches the dichotomy by Herzberg et al. (1959) who distinguish between "motivational" factors (such as monetary incentives) and "maintenance" factors (such as job retention policies and improving working conditions).
[54] The effect of the firm's industry is controlled for by including industry fixed effects in all models.

Table IV. Unbundling Employee Incentives

This table shows regression results where the dependent variable is the acquirer's three-day CAR around domestic and cross-border deal announcements. The main independent variables are the acquirer's pre-merger employment quality scores in terms of monetary incentives (Panel A), and job security factors (Panel B), interacted with a cross-border deal dummy. Monetary incentives consist of a bonus plan (Model 1a), fringe benefits (Model 2a), and the wage ratio of an average worker and the CEO (Model 3a). Job security factors consist of an indicator for having a trade union relations policy in place (Model 1b), net employment creation, measured as employment growth in the previous year (Model 2b), and a dummy for whether the firm has a job security policy (Model 3b). Each specification includes a set of deal- (relative deal size, and dummies for serial acquirers, toeholds, multiple bidders, all-cash financed deals, hostile deals, diversifying deals, and public targets), firm- (acquirer ROA, market cap., and leverage), and country-level (acquirer country labor protection indices as in Botero et al., 2004) control variables. Each specification includes year, acquirer industry, target industry, and acquirer by target region fixed effects fixed effects. Robust standard errors are reported in parentheses, and standard errors are clustered at the acquirer by target industry level. *, ** and *** stand for statistical significance at the 10%, 5%, and 1%, respectively.

Dependent Variable: Acquirer CAR [-1,+1]	***Panel A: Monetary Incentives***		
	(1a)	(2a)	(3a)
Cross-Border	0.611***	0.630***	0.382**
	(0.223)	(0.212)	(0.184)
Acquirer Bonus Plan Dummy t-1	0.370**		
	(0.155)		
Acquirer Bonus Plan Dummy t-1 × Cross-Border	-0.581***		
	(0.191)		
Acquirer Fringe Benefits Dummy t-1		0.455***	
		(0.174)	
Acquirer Fringe Benefits Dummy t-1 × Cross-Border		-0.629***	
		(0.204)	
Acquirer Wage Ratio Employees/CEO t-1			0.120***
			(0.031)
Acquirer Wage Ratio Employees/CEO t-1 × Cross-Border			-0.099*
			(0.054)
Observations	4,565	4,565	4,565
Adj. R-squared	0.065	0.066	0.055
Deal-, Firm-, and Country-Level Controls	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Acquirer and Target Industry FE	Yes	Yes	Yes
Acquirer Region x Target Region FE	Yes	Yes	Yes
Dependent Variable: Acquirer CAR [-1,+1]	***Panel B: Job Security Factors***		
	(1b)	(2b)	(3b)
Cross-Border	0.304	0.325*	0.375*
	(0.195)	(0.191)	(0.198)
Acquirer Trade Union Relations Policy t-1	-0.253		
	(0.232)		
Acquirer Trade Union Relations Policy t-1 × Cross-Border	0.158		
	(0.293)		
Acquirer Net Employment Creation t-1		-0.076	
		(0.143)	
Acquirer Net Employment Creation t-1 × Cross-Border		0.166	
		(0.170)	
Acquirer Job Security Policy t-1			-0.165
			(0.335)
Acquirer Job Security Policy t-1 × Cross-Border			-0.351
			(0.445)
Observations	4,565	4,565	4,565
Adj. R-squared	0.065	0.064	0.065
Deal-, Firm-, and Country-Level Controls	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Acquirer and Target Industry FE	Yes	Yes	Yes
Acquirer Region x Target Region FE	Yes	Yes	Yes

In line with theory and empirical evidence, we find that each of our monetary incentive variables is positively related to acquirer announcement returns. In addition, echoing our results in Table III, cross-border deals, which arguably may entail more labor-related frictions, seem to limit the extent to which these incentives can be translated into productivity and firm value. Employee compensation schemes differ significantly across countries (e.g., Card, Heining, and Kline, 2013; Mueller, Ouimet, and Simintzi, 2017) and an overly generous compensation policy for all employees with different backgrounds and cultural values may be perceived as a waste of money by acquirer shareholders. Although target employees may value such benefits, the additional uncertainty regarding post-merger integration in cross-border deals may result in the benefits being outweighed by the costs from the perspective of acquirer shareholders.

Moreover, in line with Herzberg's theory that job security does not directly lead to superior performance, we find no significant effects for the provision of job security incentives on shareholder CARs in Panel B. We measure job security incentives by (i) whether or not the firm has a trade union relations policy (*Acquirer Trade Union Relations Policy*), (ii) employment growth (*Acquirer Net Employment Creation*), and (iii) whether the firm has a job security policy (*Acquirer Job Security Policy*).[55] This indicates that the additional risks and costs related to the transfer and integration of employee policies in cross-border deals only affect the transformation of monetary incentives in productivity and shareholder value, whereas they do not matter much for the employment insurance dimension. This is not unsurprising, as earlier evidence has indicated that employment protection and insurance in cross-border M&As is generally affected by country-level labor regulations (Dessaint et al., 2017). The monetary incentives captured using our employee relations measures go beyond labor regulations (which only provide employees with a safety net), and reflect the firm's voluntary and stronger commitment to employee relations.

[55] In addition, we test a set of alternative variables related to job security (not reported): the percentage of trade unionization in the acquirer firm, the rate of turnover in the workforce, and the number of labor-related controversies reported in the media (e.g. strikes). As before, none of these are significantly related to CARs.

3.4 Labor-Related Frictions in Cross-Border Deals: Channels

We now delve deeper into the channels of labor-related frictions in cross-border deals. In other words, what types of frictions may account for the negative interaction effects shown in Table III? Relative to domestic deals, cross-border deals are considerably more complex transactions which make the integration of firms with different employee policies and different national, cultural, and organizational contexts more difficult (Aguilera and Dencker, 2004). In this section, we attempt to identify the channels through which such difficulties arise. In particular, we focus on five variables at the firm-level, industry-level, and the country-level, and interact them with *Employment Quality* for the subsample of cross-border deals, as reported in Table V. Again, all variable descriptions are given in Appendix A. As before, we find in each specification that the main effect of employment quality is significantly negative.

The first variable captures whether or not the transaction is a repeat acquisition in the target's country. Repeatedly acquiring firms in the same country familiarizes the acquirer with the target's country's employment cultures and labor market, which reduces frictions and uncertainty regarding the integration of the workforce from the perspective of acquirer shareholders. As shown in Model (1) of Table V, while the coefficient on *Employment Quality* is negative, the interaction term "*Acquirer Employment Quality* $_{t-1}$ × *Repeat Acquisition*" is positive and statistically significant at the 5% level, supporting the above argument. In economic terms, a 30 point increase in *Employment Quality* (one standard deviation) increases CARs by 0.15% if the acquirer has acquisition experience in the target's country, relative to a -0.36% decrease if this were not the case.

The second variable captures the uncertainty that rises from differences in labor regulations between the target's and the acquirer's countries. If the acquirer's CARs are indeed driven by investors' concerns about labor-related uncertainty when buying foreign targets, this effect should be attenuated if the labor protection laws are weaker in the target country. Weaker social security regulations in the target country make implementation and integration of acquirer's employment policies smoother and lessen acquirer shareholders' concerns about "wasting money" on target employees. Given our above findings on the importance of an acquirer's provision of monetary incentives such as fringe benefits, we specifically focus on the social security aspect of labor regulations (which includes state-imposed provision of health benefits and other pecuniary

incentives). We do this by using the social security law index from Botero et al. (2004). We regress acquirer CAR on the interaction of the acquirer's employee relations with an indicator for whether the target's country has a lower social security laws index than the acquirer's country, and indeed find a positive coefficient of the interaction term, indicating that weaker labor protection with regards to social security can resolve acquirer shareholders' concerns about post-merger integration uncertainties.[56]

The third variable captures the absence of economic nationalism in the target country's government as, in the inverse case foreign acquirers face more resistance from target countries' governments who may fear that foreign acquirers will infringe national interests and that corporate restructuring result in massive lay-offs in the target firm. If such "economic nationalism" is low, foreign acquirers with better employee relations may face less political opposition and hence less labor-related uncertainty about the integration of the workforce. Such integration is likely to be more effective in target countries with weaker protectionist attitudes relative to countries with stronger protectionist attitudes. We follow Dinc and Erel (2013) and use the ruling of a liberal government (a dummy variable indicating whether the ruling government is right-wing; data obtained from the Database of Political Institutions) in the target's country to proxy for the absence of economic nationalism, as (rightwing-)liberal parties usually and traditionally favor more free trade (Dinc and Erel, 2013). This argument is supported by the positive coefficient on the interaction term "*Acquirer Employment Quality t-1 × (Absence of Economic Nationalism in Target Country)*" in Model (4), which indicates that the absence of strong economic nationalism reduces the effect of labor-related uncertainty on shareholder returns.

[56] These results only hold for the social security laws index. The other three dimensions of labor regulations - employment laws (firing workers, increasing working hours, dismissal procedures), collective relations laws, and civil rights laws are less directly related to incentives such as health insurance benefits. These results also suggest that our previous results on firm-level *Employment Quality* are not entirely explained by country-level labor regulations. Although others have documented that labor market regulations and ownership structure are substitutive governance mechanisms (e.g., Bennedsen, Huang, Wagner, and Zeume, 2015), we show that this may not be the case for firm-level employment policies; firm- and country-level measures of employee policies capture different aspects and cannot be used as substitutes.

Table V. Acquirer Employment Quality: Channels (Cross-Border Deals)

This table shows regression results where the dependent variable is the acquirer's three-day CAR around cross-border deal announcements. The main independent variables are a dummy for whether the acquirer does a repeat acquisition in a particular country (Model 1), a dummy indicating whether the social security laws in the target's country are weaker than those in the acquirer's country (Model 2), a dummy indicating whether the target country has a main executive party that is not considered "nationalist"(Model 3), a dummy indicating whether the target's and the acquirer's country's population have low confidence in unions (union strength) (Model 4), or a dummy indicating low-tech deals (both the acquirer and target are in low-tech industries) (Model 5), all interacted with acquirer's pre-merger employment quality. Each specification includes a set of deal- (dummies for serial acquirers, toeholds, multiple bidders, all-cash financed deals, hostile deals, and public targets), firm- (acquirer ROA, market cap., and leverage), and country-level (acquirer and target country labor protection indices as in Botero et al., 2004) control variables. Each specification includes year, acquirer industry, target industry, and acquirer by target region fixed effects fixed effects. Robust standard errors are reported in parentheses, clustered at the acquirer by target industry level. *, ** and *** stand for statistical significance at the 10%, 5%, and 1%, respectively.

Dependent Variable: Acquirer CAR [-1,+1]	(1) Repeat Acquirer	(2) Social Security Law	(3) Economic Nationalism	(4) Confidence Unions	(5) Low-Tech Deal
Acquirer Employment Quality t-1	-0.012***	-0.0133***	-0.019***	-0.010***	-0.016***
	(0.003)	(0.003)	(0.017)	(0.003)	(0.004)
Acquirer Employment Quality t-1 × Repeat Acquisition	0.017**				
	(0.006)				
Acquirer Employment Quality × (Social Security Laws in Target Country < Acquirer Country)		0.009*			
		(0.005)			
Acquirer Employment Quality t-1 × (Absence of Economic Nationalism in Target Country)			0.031*		
			(0.017)		
Acquirer Employment Quality t-1 × (Acquirer and Target Country Low Union Strength)				0.016*	
				(0.008)	
Acquirer Employment Quality t-1 × Low-Tech Deal					0.012**
					(0.006)
Repeat Acquisition	-0.682				
	(0.551)				
Social Security Laws in Target Country < Acquirer Country		-1.030**			
		(0.404)			
Absence of Economic Nationalism in Target Country			-0.837		
			(0.766)		
Acquirer and Target Country Low Union Strength				-1.266**	
				(0.607)	
Low-Tech Deal					-0.6875*
					(0.351)
Observations	2,015	2,015	2,015	2,015	2,015
Adj. R-squared	0.104	0.102	0.100	0.102	0.102
Deal-, Firm-, and Country-Level Controls	Yes	Yes	Yes	Yes	Yes
Year FE, Acquirer and Target Industry FE	Yes	Yes	Yes	Yes	Yes
Acquirer Region by Target Region FE	Yes	Yes	Yes	Yes	Yes

The fourth variable is the perceived strength of labor unions in the acquirer and target's country. The rationale is that strong labor unions increase contract rigidity and difficulty in negotiating with employees. Therefore, low union strength in the target's country (as perceived by the acquirer) indicates the relative ease with which acquirers can integrate

post-merger employment policies. Of course, if in the acquirer country there are strong labor unions, the employees of the acquiring firm may attempt to resist the implementation of favorable employment policies in the target firm as this may shift resources from the acquirer's to the target's employees. We therefore specifically consider the case in which both the acquirer and target countries' have low perceived union strength ("low" is defined as being in the bottom tercile of the distribution), where perceived union strength is measured by "Confidence in Unions", also from the World Value Survey. As shown in Model (5), the interaction term "*Acquirer Employment Quality × (Acquirer and Target Country Low Union Strength)*" has a positive loading, suggesting that the negative effect of employee relations in cross-border deals becomes less negative when both acquirer and target country have low perceived union strength.

In Model (5), we test whether labor-related uncertainty is smaller in low-tech deals (in which target and acquirer are both in low-tech industries), relative to deals in which at least one of the parties is in a high-tech industry. Firms in high-tech industries are more vulnerable to labor-related shocks as the retention and incentivization of high-skilled workers are more crucial to their operations (Ghaly, Dang, and Stathopoulos, 2017). We thus expect that there are higher labor adjustment costs when acquiring a high-tech target. In low-tech deals on the other hand, these costs should be lower, as integrating workforce and employee policies for low-skilled employees is less difficult and costly. As shown in Model (6), "*Acquirer Employment Quality × Low-Tech deal*" is significantly positive, indicating that acquirer shareholders react more positively to cross-border deals undertaken by high-employment quality acquirers that engage in low-tech deals. For firms in low-tech industries, uncertainty regarding post-merger integration is likely to be lower, such that the benefits of providing generous employment benefits are more likely to outweigh the costs.

Overall, the results in Table V identify specific contexts in which the uncertainties and costs associated with integrating employment policies are lower, such that the inverse effect of employee relations on shareholder returns in cross-border M&As becomes weaker, and can even be completely off-set. Combining this with the fact that cross-border deals usually achieve higher abnormal returns, our results indicate that the negative interaction between employment quality and cross-border deals as found in Table III is not due to a deal being cross-border per se. Instead, there appears to be a unique aspect of cross-border deals that induces new risks and costs associated with the

post-merger integration of workforce and employment policies, which are priced by the acquiring firm's investors.

3.5 Employee Relations and Post-Merger Performance

Measuring short-run CARs around merger announcements of course does not paint a complete picture regarding a deal's performance. Therefore, in this section we investigate the effect of employment quality on the acquirer's long-run post-merger performance. That is, we investigate whether labor-related frictions in cross-border deals increase difficulties in post-merger workforce integration in the long run. We first measure long-run performance using the acquirer's returns on assets (ROA) and follow the approach in Harford, Humphery-Jenner, and Powell (2012) by industry-adjusting ROA and including the combined firm's industry-adjusted pre-merger performance (weighted by total assets) in the model as a control (Model 1). In Model (2), we follow Gormley and Matsa (2015) and include acquirer and target industry fixed effects instead of industry-adjusting the pre- and post-merger performance measures to avoid bias. In Model (3), we follow a similar approach for measuring employee productivity (Sales/Employees) two years after the completion of the takeover.

Model (1) in Table VI indicates that having a higher *Employment Quality* score decreases post-merger profitability in cross-border deals. This effect translates into a decrease in post-merger ROA of 0.72% for a one standard-deviation increase in *Employment Quality* in cross-border deals. Model (2) echoes these results, although stronger employee relations are now also associated with higher returns in cross-border deals (in line with our short-run results in Table III): a one-standard deviation increase in *Employment Quality* translates into an increase of 0.72% in post-merger ROA in domestic deals, but this effect decreases by 0.66% to 0.06% in cross-border deals. Model (3) similarly shows that an increase in *Employment Quality* results in a decrease in post-merger labor productivity in cross-border deals but not in domestic deals. This suggests that markets correctly anticipate the deal's performance at the merger announcement, and reinforces our arguments that there exist labor-related frictions that are specific to cross-border acquisitions.

Table VI. Long-Run Operating Performance

This table shows regression results where the dependent variables are the acquirer's average 2-year post-merger industry-adjusted ROA (defined as net income/assets) (Model 1), the acquirer's 2-year post-merger ROA (Model 2), or the acquirer's Sales-to-Employees ratio (Model 3) following completed domestic and cross-border deal announcements. The independent variables are the acquirer's pre-merger employment quality score and the combined firm's pre-merger (industry-adjusted) ROA (Models 1 and 2), or the combined industry-adjusted Sales-to-Employees ratio (Model 3). Each specification includes a set of deal- (relative deal size, dummies for serial acquirers, toeholds, multiple bidders, all-cash financed deals, hostile deals, diversifying deals, and public targets), firm- (acquirer ROA and leverage), and country-level (acquirer and target country labor protection indices as in Botero et al., 2004) control variables. Robust standard errors are reported in parentheses, and standard errors are clustered at the acquirer by target industry level. *, ** and *** stand for statistical significance at the 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)
Dependent variable:	*2-Year Post-Merger Acq. ROA (Ind. Adj.)*	*2-Year Post-Merger Acq. ROA*	*2-Year Post-Merger Acq. Sales/Employee*
Acquirer Employment Quality	0.018	0.024**	0.012
	(0.012)	(0.011)	(0.010)
Cross-Border	1.027	1.396	1.018
	(1.080)	(0.132)	(0.659)
Acquirer Employment Quality x Cross-Border	-0.024*	-0.022*	-0.018*
	(0.014)	(0.012)	(0.009)
Pre-Merger Combined ROA (Ind. Adj.)	-0.014		
	(0.048)		
Pre-Merger Combined ROA		-0.024	
		(0.036)	
Pre-Merger Combined Sales/Employees Ratio			1.228***
			(0.213)
Deal-, Firm-, and Country-Level Controls	Yes	Yes	Yes
Acquirer and Target Industry Fixed Effects	No	Yes	Yes
Observations	655	655	85
Adj. R-squared	0.126	0.481	0.928

3.6 The Role of the Target Firm's Employee Relations and Announcement Returns

One could wonder whether our above results are driven by the target's employee relations, rather than the acquirer's. Empirically this is a difficult question because we have relatively few data on the targets' employment quality scores in the ASSET4 database. ASSET4 mainly covers large firms included in the major global equity indices, so most (small) targets do not receive a rating from ASSET4. Nevertheless, we conduct tests on a subsample of deals with employment quality data available for both the target and the acquiring firm (362 deals in total).

Table VII. Aligning the Target's with the Acquirer's Employee Relations

This table shows regression results where the dependent variable is the three-day CAR around an M&A announcement of the acquirer (Panel A), or the target or the combined firm after the merger (Panel B). In Panel A, the dependent variable is the acquirer CAR, and the independent variables are dummies for combinations of above- and below-median target and acquirer employee relations in terms of employment quality. In Panel B, the dependent variable is the target CAR in Model (1) and the acquirer-target combined CAR weighted by market value (MV) (calculated as (Acquirer MV * Acquirer CAR + Target MV * Target CAR) / (Acquirer MV + Target MV)) in Model (2). All specifications include a set of deal- (dummies for serial acquirers, toeholds, multiple bidders, all-cash financed deals, hostile deals, diversifying deals, and relative deal size), firm- (acquirer ROA, market cap., and leverage, and target ROA), and acquirer and target country-level (labor protection indices as in Botero et al., 2004) control variables. Each specification includes year, acquirer industry, and target industry fixed effects. Robust standard errors are reported in parentheses and are clustered at the acquirer by target industry level. *, ** and *** stand for statistical significance at the 10%, 5%, and 1%, respectively.

Panel A. Dependent Variable: Acquirer CAR [-1,+1]	(1)	(2)	(3)	(4)
Cross-Border	-1.393*	0.560	0.142	1.026
	(0.806)	0.504)	0.619)	(1.011)
Low Acq. Employment Quality, High Target Employment Quality	-1.381			-0.457
	(0.843)			(0.802)
Low Acq. Employment Quality, High Target Employment Quality × Cross-Border	1.896			-0.470
	(1.437)			(1.570)
High Acq. Employment Quality, Low Target Employment Quality		0.198		0.667
		(0.703)		(0.744)
High Acq. Employment Quality, Low Target Employment Quality × Cross-Border		-1.661*		-3.222***
		(0.936)		(1.043)
High Acq. Employment Quality, High Target Employment Quality			2.327**	2.316*
			(1.055)	(1.191)
High Acq. Employment Quality, High Target Employment Quality × Cross-Border			-2.717**	-4.013***
			(1.059)	(1.272)
Observations	362	362	362	362
Adj. R-squared	0.161	0.159	0.171	0.186
Deal, Firm, and Country Controls	Yes	Yes	Yes	Yes
Acquirer Industry, Target Industry, and Year FE	Yes	Yes	Yes	Yes

Panel B. Dependent Variable is Target CARs or Combined Firm CARs		
	(1) *DV = Target CAR [-1,+1]*	(2) *DV = Combined Firm CAR [-1,+1]*
Acquirer Employment Quality$_{t-1}$	0.102	0.016**
	(0.113)	(0.008)
Cross-Border	-9.354	1.557*
	(6.493)	(0.843)
Acquirer Employment Quality$_{t-1}$ × Cross-Border	0.059	-0.022*
	(0.110)	(0.012)
Observations	917	789
Ad. R-squared	0.135	0.253
Deal, Firm, and Country Controls	Yes	Yes
Year FE, Acquirer and Target Industry FE	Yes	Yes

In Panel A of Table VII, we classify both the acquirer's and the target's *Employment Quality* scores into high- and low-groups ("high" or "low" refers to the employment quality score being above or below the sample median). We then interact the cross-border dummy with different combinations of the acquirer's and target's employment quality scores such that we concentrate on four subsamples based on a two-by-two matrix capturing

high/low scores by acquirers/targets, as shown in Table VII. We first investigate each dimension separately in Models (1) – (3), and combine them in Model (4) (the "Acquirer Low, Target Low" combination is omitted as it is the benchmark case). We find that our results are almost exclusively valid for those cases with an above-median level of employment quality in the acquirer, regardless of the target's employment quality score. In other words, the target's employee relations do not seem to affect the impact of the enhanced employee incentives of the acquirer and the labor-related frictions that we identify.

Given the insignificant effect of the target's employee relations, we again focus on the acquirer's employee relations, and test its effect on the announcement returns of the target and of the combined firm. The results are shown in Panel B of Table VII. Column (1) has the target's CARs as the dependent variable, and shows that the coefficient on the acquirer's *Employee Quality* is insignificant. This is intuitive as target shareholders care less about post-merger integration frictions and uncertainties. Given that they sell their shares to the acquirer, they are much more likely to react to, for example, a higher deal premium or the likelihood of deal completion. Column (2) has the combined firm CARs as the dependent variable, and shows significant effects consistent with our earlier findings (Column (2)). This significance seems completely driven by the acquirer's CARs, as the signs and magnitudes of the coefficients are in line with those in our baseline results using the acquirer's CARs (Table III). Of course, these results should be interpreted with caution as they come from a relatively small subsample, but they are consistent with our arguments and earlier results.

In the next section, we investigate the robustness of our results by performing a placebo test and an instrumental variable test, and we rule out a large set of alternative stories.

4. Robustness and Alternative Explanations

4.1 Placebo Test on Employee Relations and Propensity Score Matching

Are our results unique to the employment quality measure, or are the relations hardwired in the rating metrics of the ASSET4 database? In Panel A of Table VIII, we show results for a placebo test in which we investigate alternative dimensions of employee relations that are not related to the provision of monetary incentives and which should not be affected by frictions regarding firms' abilities to incentivize employees. Model (1)

repeats our analysis in Model (4) of Panel B in Table III, which we show here as a benchmark. Models (2)-(4) show the results for 3 alternative dimensions of employee relations, namely *Workforce Health & Safety*, *Workforce Diversity*, and *Training & Development*. We combine them with *Employment Quality* in Model (5). We find that only *Employment Quality* is significantly related to CARs, which supports our argument that we capture labor-related frictions that affect monetary incentives but no other dimensions of employee relations. Therefore, it is plausible to argue that employees are more incentivized by benefits in terms of monetary compensation, than by the improvement of their working environment or workforce diversity (Herzberg et al., 1959).

Next, we perform a propensity score matching analysis as an alternative way to control for differences in deal, firm, country, and industry-level characteristics. We match deals involving acquirers with above-median *Employment Quality* with deals by acquirers with below-median *Employment Quality*, and we use as matching variables the control variables in our baseline specification (acquirer and target country-level labor indices, serial acquirers, acquirer ROA, acquirer leverage, acquirer market capitalization, toeholds, multiple bidders, all-cash financing, hostile deals, diversifying deals, and public targets) as well as industries and years. As we estimate propensity scores, we bootstrap the reported standard errors. The results in Panel B confirm that acquirers with high *Employment Quality* earn 55 basis points higher returns in domestic deals relative to matched firms with low *Employment Quality*, but this effect reverses for cross-border deals. Again, this suggests that, although investing in employee relations can be beneficial to firm value in domestic deals, there are additional labor-related costs when acquiring a foreign target.

Table VIII. Placebo Tests and Propensity Score Matching

Panel A shows regression results where the dependent variable is the acquirer's three-day CAR around an M&A announcement. The independent variables are the acquirer's pre-merger employment quality scores in terms of (a combination of (Model (5)) employment quality (Model (1)), health and safety (Model (2)), workforce diversity (Model (3)), and training and development (Model (4)). All specifications include a set of deal- (dummies for serial acquirers, toeholds, multiple bidders, all-cash financed deals, hostile deals, diversifying deals, and public targets, and the relative deal size), firm- (acquirer ROA, market cap., and leverage), and acquirer and target country-level (labor protection indices as in Botero et al., 2004) control variables. Each specification includes year, acquirer industry, target industry, and acquirer by target region fixed effects fixed effects. Robust standard errors are reported in parentheses, and standard errors are clustered at the acquirer by target industry level. Panel B reports the results of a propensity score matching procedure (nearest-neighbor matching) used to test the differences in CARs between deals involving acquirers with above-median Employment Quality, matched with deals involving acquirers with below-median Employment Quality, for domestic and cross-border deals. Matching is based on all control variables used in our baseline specification, as well as on industry and year. Standard errors are bootstrapped. *, ** and *** stand for statistical significance at the 10%, 5%, and 1%, respectively.

Panel A: Placebo Tests

Dependent Variable: Acquirer CAR [-1,+1]	(1)	(2)	(3)	(4)	(5)
Cross-Border	1.158***	0.586*	0.656*	0.536	1.086***
	(0.343)	(0.338)	(0.317)	(0.308)	(0.378)
Acquirer Employment Quality$_{t-1}$	0.007**				0.008**
	(0.003)				(0.003)
Acquirer Employment Quality$_{t-1}$ × Cross-Border	-0.015***				-0.017***
	(0.004)				(0.005)
Acquirer Health & Safety$_{t-1}$		0.005			-0.002
		(0.003)			(0.003)
Acquirer Health & Safety$_{t-1}$× Cross-Border		-0.005			-0.001
		(0.005)			(0.006)
Acquirer Workforce Diversity$_{-1}$			0.004		0.004
			(0.003)		(0.004)
Acquirer Workforce Diversity$_{-1}$× Cross-Border			-0.006		-0.003
			(0.004)		(0.006)
Acquirer Training & Development$_{t-1}$				0.0004	-0.005
				(0.003)	(0.004)
Acquirer Training & Development$_{t-1}$× Cross-Border				-0.004	0.007
				(0.004)	(0.007)
Observations	4,565	4,565	4,565	4,565	4,565
Adj. R-squared	0.050	0.048	0.048	0.048	0.051
Acquirer and Target Country Level Controls	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Acquirer and Target Industry FE	Yes	Yes	Yes	Yes	Yes
Acquirer Region x Target Region FE	Yes	Yes	Yes	Yes	Yes

Panel B: Propensity Score Matching

Dependent Variable: Acquirer CAR [-1,+1]	(1) High Employment Quality Acquirers	(2) Low Employment Quality Acquirers	(3) Difference (Bootstrapped St. Err.)
Domestic	-0.047	-0.596	0.550**
N	1,116	1,434	
Cross-Border	-0.025	0.513	-0.537**
N	1,166	849	

4.2 Alternative Explanations

In Table IX, we further conduct several more tests to rule out other alternative explanations for our results that may be unrelated to labor-related frictions in cross-border M&As. First, the attenuating effect of cross-border deals that we identify may simply capture the geographical distance between the acquirer's and target's country. Although such an argument does not explain why only monetary incentives are affected, we nevertheless interact *Employment Quality* with an indicator for whether the geographical distance between the acquirer's and target's countries is above the sample median (Model (1)). Similarly, many have documented that the acquirer and target countries sharing a common language or a common border may explain the propensity and returns of cross-border deals. We therefore interact *Employment Quality* with indicator variables capturing whether the acquirer's and target's countries have a language in common (Model (2)), or a share a common border (Model (3)). Third, our results may also be driven by a difference in GDP per capita between the acquirer's and the target's countries. That is, if acquirers providing generous employee welfare (i.e., high employment quality) are firms from high GDP per capita countries that acquire targets in low GDP per capita countries, it could be that it is such difference in economic development that drives the negative CARs around cross-border deals. We therefore interact *Employment Quality* with the difference between the two countries' GDP per capita (in logarithm) (Model (4)). Fourth, the level of employee relations may be driven by the difference between the cultures of the target's and the acquirer's countries that are unrelated to labor issues (Ahern, Daminelli, and Fracassi, 2015). Hence, in Models (5) and (6), we interact the *Employment Quality* score with two World Value Survey variables capturing the difference between the acquirer's and target's countries in terms of people's attitudes towards work. We consider the percentage of people considering "*Responsibility Is Important*" and "*Job Security Is Important*." The latter dimension is an important test, as we found that our results are almost exclusively driven by monetary incentives. Therefore, we should not expect to find that the relative importance of job security incentives induces labor-related frictions when acquiring a foreign target. As expected, we find that none of the above mentioned interactions have significant coefficients.

Table IX. Testing Alternative Explanations for the Attenuating Effect in Cross-Border Deals

This table shows regression results where the dependent variable is the acquirer's three-day CAR around cross-border (Models 1-6) or cross-border and domestic (Model 7) deal announcements. The main independent variables are a dummy for whether the distance between the target's and acquirer's country is higher than the sample median (Model 1), whether the target's and acquirer's countries have a common language (Model 2) or a border (Model 3), the difference in log(GDP/Capita) between the target's and acquirer's country (Model 4), the difference in the percentage of the target's and acquirer's country's population that considers "responsibility" important (Model 5), a dummy indicating whether the target's country's population considers "job security" more important in a job than the acquirer's country's population (Model 6), all interacted with employment quality. Model 7 reports the result of regressing acquirer CAR on a dummy variable indicating that the acquirer has high employment quality (defined as the Employment Quality score above 50) and without any interaction on the subsample of domestic deals only. Each specification includes a set of deal- (dummies for serial acquirers, toeholds, multiple bidders, all-cash financed deals, hostile deals, relative deal size, and public targets), firm- (acquirer ROA, market cap., and leverage), and country-level (acquirer and target country labor protection indices as in Botero et al., 2004) control variables. Each specification includes year, acquirer industry, target industry, and acquirer by target region fixed effects fixed effects. Robust standard errors are reported in parentheses, and standard errors are clustered at the acquirer by target industry level. *, ** and *** stand for statistical significance at the 10%, 5%, and 1%, respectively.

Dependent Variable: Acquirer CAR [-1,+1]	(1) *Cross-Border*	(2) *Cross-Border*	(3) *Cross-Border*	(4) *Cross-Border*	(5) *Cross-Border*	(6) *Cross-Border*	(7) *Domestic*
Acquirer Employment Quality t-1	-0.009*	-0.010***	-0.009***	-0.010***	-0.013**	-0.009***	
	(0.005)	(0.004)	(0.003)	(0.003)	(0.006)	(0.003)	
Distance > Median	-0.117						
	(0.569)						
Acquirer Employment Quality t-1 × (Distance > Median)	-0.001						
	(0.007)						
Target and Acquirer Country Share Common Language		-0.323					
		(0.587)					
Acquirer Employment Quality t-1 × (Target and Acquirer Country Share Common Language)		0.006					
		(0.008)					
Target and Acquirer Country Share Border			0.614				
			(0.708)				
Acquirer Employment Quality t-1 × (Target and Acquirer Country Share Border)			0.004				
			(0.008)				
Difference in log(GDP/Capita)				0.440**			
				(0.223)			
Acquirer Employment Quality t-1 × (Difference in log(GDP/Capita))				-0.002			
				(0.003)			
Target > Acquirer Country "Responsibility is Important"					-0.034*		
					(0.019)		
Acquirer Employment Quality t-1 × (Target > Acquirer Country "Responsibility is Important")					0.001		
					(0.002)		
Target > Acquirer Country "Job Security is Important"						-0.836	
						(1.008)	
Acquirer Employment Quality t-1 × (Target > Acquirer Country "Job Security is Important")						0.009	
						(0.013)	
Acquirer High Employment Quality (Dummy)							0.355*
							(0.184)
Observations	2,015	2,015	2,015	1,735	1,432	2,015	2,550
Adj. R-squared	0.094	0.101	0.103	0.107	0.131	0.101	0.042
Deal-, Firm-, and Country Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Acquirer and Target Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Acquirer Region x Target Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

What remains unclear is whether the negative effect when acquiring a foreign target is the result of labor-related frictions specific to cross-border deals, or whether it results from simply over-engaging in providing employee welfare which could be too costly and thus reduces firm value. The descriptive statistics in Panel A of Table II indicate that these two effects may coincide, and we need to disentangle them to further pin down the exact mechanism. Therefore, we consider an indicator for whether the acquirer's *Employment Quality* score is above the score of 50 (larger than the industry average, which we consider as "over-investment" in employee relations), but we investigate its effect on the subsample of *domestic deals only*. If the over-investment story holds, we expect a significant and negative coefficient of the "*High Employment Quality*" dummy in this subsample of domestic deals. The positive coefficient in Model (7) refutes this, and suggests that the negative effect of employment quality in cross-border deals does not arise from the acquirer over-investment in employee relations in general.

4.3 Instrumental Variable Approach

In earlier specifications, we have shown that our results are not likely to be driven by time-invariant underlying characteristics of firms that acquire domestically or internationally (see Model (6) in Panel B of Table III). In addition, it seems unlikely that acquirers adjust their level of employment quality because they may do a takeover bid in the next year. To reduce a potential omitted variable bias, we included industry, year, region by region, country by country, and acquirer firm fixed effects, along with a large number of control variables in our specifications. However, to further account for potential endogeneity issues from unobservable omitted variables, we perform a two-stage instrumental variable (IV) regression as a robustness test. Specifically, we use the acquirer's industry peers' average employee wages and benefits as an IV for *Employment Quality*. Whereas a firm's expenses in terms of wages and benefits are influenced by the wage expenses by its industry peers (satisfying the relevance requirement of instrumental variables), it is unlikely that these expenses by industry peers affect the firm's announcement returns directly or through channels other than the focal firm's employment policies, thus satisfying the exclusion condition.[57] Similar arguments on peer

[57] One potential concern is that the firm's employment quality and its peer firms' wages and benefits expenses are affected by transitory political or economic situations (e.g. "Brexit"). However, as our employment quality score is adjusted for the firm's global industry peers rather than its national peers, such local events should not affect our identification in a substantial way.

effects are made for other corporate policies such as capital structure (Leary and Roberts, 2014), corporate financial policies (Ferrell, Liang, and Renneboog, 2016), corporate social responsibility (Cao, Liang, and Zhan, 2017; Liang and Renneboog, 2017), and corporate culture (Fiordelisi, Li, Stentella-Lopes, and Ricci, 2016). We take the within-sample mean of the lagged employee salaries and benefits expenses (as obtained from Worldscope) for the focal company's peer firms by industry and by year (industry-year average) as the IV. The results for the first- and second-stage regressions are presented in Appendix E. We find that the industry peers' average wage expenses are strongly positively related to *Employment Quality* and that using an IV approach does not affect our conclusions from Table 3: higher levels of employment quality (as predicted in the first stage) is positively related to CARs in domestic deals, and the effect again reverses in cross-border deals. This increases our confidence that the effects on shareholder value we have identified are indeed driven by the acquirer's level of employee relations.

4.4 Other Robustness Tests

We further conduct a few other sample-specific robustness tests. First, based on our sample distributions, one could argue that our results may be driven by US acquirers, as they make up 27% of our sample (Appendix C). In Appendix F, we repeat our results for a sample excluding US acquirers. We find that our results remain qualitatively unchanged, suggesting that we are identifying a global phenomenon. Similarly, our results may be driven a small subsample of serial acquiring firms that have radically different strategies for acquiring domestic versus foreign targets. Excluding serial acquiring firms also does not affect our results, however. Next, we investigate whether our results may be driven by a demand-side story in which employees demand for stronger monetary compensation with the threat that they may otherwise leave the firm. Although such an explanation is hard to reconcile with our earlier evidence, we test this by comparing subsamples of deals involving targets from OECD targets versus those from non-OECD targets. The costs of rewarding employees from targets in developing countries with strong monetary incentives may outweigh the benefits, as these employees are unlikely to have many outside options. They are thus unlikely to threaten to leave the firm if their demands are not met, such that the costs of providing strong incentives do not outweigh the benefits of retaining employees. We find that such an effect does not drive our results, as all our results appear in the sample consisting of OECD targets and not in the sample

consisting of non-OECD targets. Last, we investigate a different dimension of the demand-side story, by interacting employment quality with a proxy for the firm's reputation. We construct an indicator for whether the firm won an employee award as such firms likely have better reputations. In these firms, employees may not threaten to leave if their demands are not met as firm reputation acts as an incentive by itself. However, we find no significant effects, indicating that our results are more likely to be driven by a supply-side argument rather than a demand-side argument.

We also examine whether a firm's level of employee relations drives the returns around domestic and cross-border M&A deals through its effect on increasing/reducing the likelihood of engaging in a domestic versus a cross-border M&A. We use a Heckman selection model to estimate the relation between the firm's employment quality and the likelihood of the firm embarking on a domestic versus a cross-border takeover transaction, conditional on the firm having decided on performing an M&A transaction. Gao and Ma (2016) and Ouimet and Zarutskie (2016) find that labor regulation is strongly related to takeover propensity. Our results, based on *firm-level* data (which go beyond the country-level regulations), show that a firm's employment quality is positively related to engaging in M&A deals (in the first stage), but that the magnitudes are economically very small. In addition, the firm's employment quality is not significantly related to the choice between domestic and cross-border deals (2nd stage regressions; tables available upon request). This implies that a firm's treatment of its employees (over and beyond a country's labor regulations) is not likely to be a significant driver of management's decision to engage in domestic or cross-border M&A deals, but it does affect the value creation in these deals.

5. Conclusions

Despite the plethora of studies on how cross-border takeovers differ from domestic ones, the roles of human capital and employee relations remain under-explored. In this paper, we have provided novel evidence on how human capital *at the firm-level* matters in M&As by investigating the effects of an acquiring firm's treatment of employees in terms of monetary and job security incentives on the returns to shareholders around M&A announcements for a sample of large public corporations around the world. We find acquirers with stronger employee relations (especially in terms of monetary compensation) earn substantially higher returns around domestic M&A announcements,

but this effect is reversed in cross-border acquisitions. We attribute this reversal effect to shareholders' negative perception of uncertainties regarding the post-merger integration of the workforce. The underlying idea is that treating employees well can reduce labor adjustment costs during the post-merger reorganization process, but the increased uncertainties in cross-border deals may result in acquirer shareholders' perception of the costs outweighing the benefits on providing generous employment policies. We do not find consistent evidence that (differences in) economic development, culture, geographical distance, or language drive our results. Furthermore, our main findings stem from the acquirer's treatment of employees rather than the target's, and they are mainly driven by the provision of monetary incentives rather than by job security incentives. Our results are also robust to acquirer fixed effects, to propensity score matching, to using instrumental variables, and to the construction of different samples, and we also find that the short-run results are echoed by the acquirer's long-run performance.

Our study adds to the literature on the determinants of value creation in cross-border acquisitions. By acquiring a foreign target, firms can take advantage of cross-country differences in legal environments and investor protection (Rossi and Volpin, 2004; Bris and Cabolis, 2008), product markets (DeGiovanni, 2005), financial development (Alquist et al., 2014), and tax rules (Huizinga and Voget, 2009). However, such differences also induce additional complexity and uncertainties (Aguilera and Dencker, 2004) arising from cultural and organizational differences that affect post-merger coordination and the realization of merger synergies (Siegel, Licht, and Schwartz, 2012; Ahern et al., 2015). This paper provides evidence for a new source of frictions arising in cross-border acquisitions, namely those related to the transfer and integration of workforce and corporate employment policies across national borders.

Our study is also related to the growing literature on human capital in M&As. While some recent studies look at labor relations in the context of corporate restructuring and takeovers (Atanassov and Kim, 2009; Masulis et al., 2016; John, Knyazeva, and Knyazava, 2015; Dessaint et al., 2016; Levine et al., 2015; Kim et al., 2015; Lin, Schmid, and Xuan, 2017; Ahmad and Lambert, 2016), these studies consider the country-level rather than the firm-level. In addition, a large fraction of studies investigates these issues in a single-country setting, generally based on the US framework (Pagano and Volpin, 2005; Cronqvist et al., 2009; Edmans, 2011; 2012; Edmans, Li, and Zhang, 2015); Masulis et al.,

2016). Instead, this paper is among the first to provide global evidence on firm-level investment in employee relations and how labor-related frictions in cross-border M&A deals affect the link between a company's employee relations and deal performance.

Taken together, our findings suggest an explanation for the marked differences in deal performance between domestic and cross-border takeovers, as well as for the conflicting findings in the existing literature on the role of labor orientation in driving firm and shareholder value. Perhaps the most intuitive implication of our results is that firms and shareholders should not consider generous employee benefits as being absolutely good or bad for firm value in the context of firm reorganization. A trade-off exists between value-enhancing incentive effects and the labor-related frictions brought about by cross-border deals. Overall, our findings reinforce the notion that employees play a fundamental yet nuanced role in a corporation, and highlight the importance of taking into account such nuances when studying M&As and the interplay between finance and labor, which remain a fruitful area for future research.

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Appendix

Appendix A. Variable Descriptions

Deal Characteristics	
Cross-Border	A dummy equal to one if the deal is labelled as "Cross-Border" in SDC, and zero otherwise. *Source: SDC Mergers and Acquisitions Database.*
Public Target	A dummy equal to one if the target's public status is "Listed", and zero otherwise. *Source: SDC Mergers and Acquisitions Database.*
Diversifying Deal	A dummy equal to one if the acquirer's 2-digit SIC code is different from the target's 2-digit SIC code, and zero otherwise. *Source: SDC Mergers and Acquisitions Database.*
Hostile Deal	A dummy equal to one if the deal's attitude is labelled as "Hostile" in SDC, and zero otherwise. *Source: SDC Mergers and Acquisitions Database.*
All-Cash Financing	A dummy equal to one if the deal is fully financed in cash, and zero otherwise. *Source: SDC Mergers and Acquisitions Database.*
Multiple Bidders	A dummy equal to one if more than one bidding firm was involved in the deal, and zero otherwise. *Source: SDC Mergers and Acquisitions Database.*
Firm Characteristics	
Toehold	A dummy equal to one if the acquiring firm had a toehold before the acquisition, and zero otherwise. *Source: SDC Mergers and Acquisitions Database.*
Relative Deal Size	Value of the deal, divided by the market value of equity of the acquiring firm. *Source: SDC Mergers and Acquisitions Database.*
Acquirer Total Assets	Log of the acquirer's total assets. *Source: Datastream.*
Acquirer Market Cap.	Log of the acquirer's market capitalization (market value of equity). *Source: Datastream.*
Acquirer Leverage	Book value of the acquirer's total liabilities, divided by the market value of assets. *Source: Datastream.*
Acquirer ROA	Acquirer's EBITDA, divided by the book value of assets. *Source: Datastream.*
Serial Acquirer	A dummy equal to one if the acquiring firm made more than 10 takeover announcements over the sample period, and zero otherwise.
Country Labor Regulations	
Employment Laws Index	Measures the protection of labor and employment laws, calculated as the average of (i) alternative employment contracts; (ii) cost of increasing hours worked; (iii) cost of firing workers; and (iv) dismissal procedures. *Source: Botero et al. (2004).*
Collective Relations Laws Index	Measures the protection of collective relations laws, calculated as the average of (i) labor union power and (ii) collective disputes. *Source: Botero et al. (2004).*
Social Security Laws Index	Measures social security benefits, based on measures of (i) old age, disability and death benefits; (ii) sickness and health benefits; and (iii) unemployment benefits. *Source: Botero et al. (2004).*
Civil Rights Index	Measures the degree of protection of vulnerable groups against employment discrimination, based on measures of (i) labor discrimination on grounds of race is expressly prohibited by law, (ii) labor discrimination on grounds of gender is expressly prohibited by law, (iii) statutory duration of maternity leave with retention of 100% of earnings,

	(iv) minimum working age, and (v) mandatory minimum wage. *Source: Botero et al. (2004).*

Employee Relations	
Employment Quality	A score measuring the firm's commitment and effectiveness towards providing high-quality employment benefits and job conditions, such as distributing fair employment benefits, focusing on long-term employment growth and stability, avoiding lay-offs, and maintaining relations with trade unions. The score ranges from 0 to 100, with larger value indicating better employment relations. *Source: Thomson Reuters ASSET4 ESG Database.*
Health and Safety	A score measuring the firm's commitment and effectiveness towards providing a healthy and safe workplace, concern for physical and mental health, well-being, and stress levels of all employees. The score ranges from 0 to 100, with larger value indicating better employment relations. *Source: Thomson Reuters ASSET4 ESG Database.*
Workforce Diversity	A score measuring the firm's commitment and effectiveness towards maintaining diversity and equal opportunities in its workforce, such as promoting an effective work-life balance, a family-friendly environment, and equal opportunities regardless of age, gender, ethnicity, religion, or sexual orientation. The score ranges from 0 to 100, with larger values indicating better employment relations. *Source: Thomson Reuters ASSET4 ESG Database.*
Training and Development	A score measuring the firm's commitment and effectiveness towards providing training and development (education) for its workforce. The score ranges from 0 to 100, with larger values indicating better employee relations. *Source: Thomson Reuters ASSET4 ESG Database.*
Bonus Plan Dummy	A dummy indicator for whether the firm provides a bonus plan to at least the middle management level whether employees' compensation based on personal or company-wide targets. *Source: Thomson Reuters ASSET4 ESG Database.*
Fringe Benefits Dummy	A dummy indicator for whether the firm provides its employees with a pension fund, health care, or other insurances. *Source: Thomson Reuters ASSET4 ESG Database.*
Wage Ratio Employees/CEO	Ratio between an average worker's salary and the CEO's salary, measured as Average Salaries and Benefits/Highest Salary. *Source: Thomson Reuters ASSET4 ESG Database.*
Net Employment Creation	Growth in the firms' employee base, measured as Number of Employees, scaled by last year's Number of Employees, -1. *Source: Thomson Reuters ASSET4 ESG Database.*
Trade Union Relations Policy	A dummy indicator for whether the firm has a policy in place to ensure good relations with trade unions. *Source: Thomson Reuters ASSET4 ESG Database.*
Job Security Policy	A dummy indicator whether the firm has a policy in place to maintain job security. *Source: Thomson Reuters ASSET4 ESG Database.*

Mechanisms	
Repeat Acquisition	A dummy equal to one if the firm has acquired a firm in the target's country in the past. It is equal to zero if the firm has not previously acquired any firms in the target's country.
Social Security Laws in Target Country < Acquirer Country	A dummy equal to one if the target's country has weaker social security laws than the acquirer's country, and zero otherwise. *Source: Botero et al. (2004).*
Absence of Economic Nationalism in Target Country	A dummy equal to one if the target country's government has a rightwing/liberal main executive party. It is equal to zero if it has a leftwing/nationalist main executive party. *Source: Database of Political Institutions.*
Acquirer and Target Country Low Union Strength	A dummy equal to one if the target's and acquirer's country are in the bottom tercile for the variable "confidence in unions", aggregated at the country level. *Source: World Value Survey.*
Ind-Yr Average Salaries & Benefits Expenses	Firms' annual expenses in terms of employee salaries and benefits, averaged annually by industry. *Source: Worldscope*.
Distance > Median	A dummy equal to one if the log distance between the acquirer's and target's capitals is above the sample median, and zero otherwise. *Source: CEPII.*
Target and Acquirer Countries Share Common Language	A dummy equal to one if the acquirer's and target's country have an official language in common, and zero otherwise. *Source: CEPII.*
Target and Acquirer Countries Share Common Border	A dummy equal to one if the acquirer's and target's countries share a common border, and zero otherwise. *Source: CEPII.*
Low-Tech Deal	A dummy equal to one if the target and acquirer are in low-tech industries, as defined by SDC. *Source: SDC.*
Difference in log(GDP/Capita)	The difference in log(GDP/Capita) between the acquirer's and target's countries. *Source: CEPII.*
Target Country > Acq. Country "Responsibility is Important"	A dummy equal to one if the target's country is in the top tercile and the acquirer's country is in the bottom tercile for the variable "a feeling of responsibility is important", aggregated at the country level. *Source: World Value Survey.*
Target Country > Acq. Country "Job Security is Important"	A dummy equal to one if the target's country is in the top tercile and the acquirer's country is in the bottom tercile for the variable "job security is important in a job", aggregated at the country level. *Source: World Value Survey.*

Appendix B. Industry Distribution

This table shows the sample distribution by acquirer industry and year for the domestic and cross-border deals in our sample.

	Year												
Acquirer Industry (Fama-French 48)	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**Total**
Agriculture	0	0	2	1	3	0	3	4	6	7	2	0	**28**
Food Products	2	0	3	7	6	7	5	16	16	16	11	6	**95**
Candy & Soda	0	1	0	5	4	0	1	2	5	3	4	0	**25**
Beer & Liquor	6	5	6	3	3	4	2	1	5	11	1	2	**49**
Tobacco Products	1	1	0	0	3	1	4	0	1	1	0	1	**13**
Recreation	2	1	2	3	7	7	6	0	2	2	4	0	**36**
Entertainment	1	0	0	3	1	2	1	1	1	3	1	0	**14**
Printing and Publishing	3	4	4	11	6	3	2	9	8	5	6	2	**63**
Consumer Goods	0	1	4	3	4	5	2	16	9	13	6	4	**67**
Apparel	0	2	3	1	2	1	1	1	1	2	0	0	**14**
Healthcare	1	0	3	2	5	1	0	4	1	3	3	2	**25**
Medical Equipment	9	4	11	13	8	12	8	10	11	13	12	5	**116**
Pharmaceutical Products	6	4	8	19	18	15	21	20	22	14	16	8	**171**
Chemicals	3	6	7	13	9	12	6	17	16	21	17	6	**133**
Rubber and Plastic Products	0	0	0	0	1	0	2	2	3	2	1	2	**13**
Textiles	0	0	2	0	1	1	1	2	2	1	2	0	**12**
Construction Material	5	3	6	9	8	8	6	8	7	10	5	3	**78**
Construction	3	2	7	9	19	5	12	9	8	5	11	4	**94**
Steel Works Etc	4	2	9	8	9	10	11	15	14	8	4	8	**102**
Fabricated Products	0	0	0	0	0	0	4	2	0	0	0	0	**6**
Machinery	4	1	8	15	15	9	15	13	23	21	9	8	**141**
Electrical Equipment	2	2	3	1	2	3	2	2	7	3	7	1	**35**
Automobiles and Truck	1	3	2	4	8	7	3	3	7	3	5	3	**49**
Aircraft	3	4	0	2	4	4	3	4	5	2	5	1	**37**
Shipbuilding, Railroad Equipment	0	0	0	1	0	0	4	1	0	1	1	1	**9**
Defense	2	0	1	1	2	5	1	2	0	0	1	2	**17**
Precious Metals	0	0	3	3	2	6	25	18	22	16	10	2	**107**
Non-Metallic & Ind. Metal Mining	0	0	4	5	8	11	15	17	19	15	7	4	**105**
Coal	0	0	1	2	5	3	2	6	1	4	1	0	**25**
Petroleum and Natural Gas	5	2	15	20	25	23	36	30	31	32	17	10	**246**
Utilities	13	7	9	20	11	21	19	20	14	14	4	3	**155**
Communication	8	6	28	24	18	18	30	19	24	18	23	13	**229**
Personal Services	0	0	3	4	2	0	4	2	3	2	4	1	**25**
Business Services	24	21	41	42	38	49	29	35	47	53	43	37	**459**
Computers	1	5	6	6	11	5	11	11	11	14	12	2	**95**
Electronic Equipment	11	10	13	23	22	13	19	17	13	23	11	11	**186**
Measuring and Control Equipment	1	2	7	8	9	3	2	3	3	6	1	3	**48**
Business Supplies	2	1	2	2	1	2	3	3	3	5	2	3	**29**
Shipping Containers	3	2	1	3	3	0	1	0	2	3	1	1	**20**
Transportation	4	4	12	12	8	13	10	15	5	8	9	4	**104**
Wholesale	8	3	9	17	14	10	13	11	17	12	13	6	**133**
Retail	1	1	4	19	15	22	14	15	27	22	18	14	**172**
Restaurants, Hotels, Motels	2	5	6	6	3	4	2	0	7	2	3	3	**43**
Banking	12	19	36	44	49	29	24	31	38	30	21	18	**351**
Insurance	5	5	5	11	20	15	9	12	9	12	12	11	**126**
Real Estate	1	4	4	3	5	4	4	4	8	3	4	5	**49**
Trading	7	10	42	43	51	28	28	41	35	42	32	18	**377**
Other	2	1	2	5	2	12	2	2	1	8	2	0	**39**
Total	**168**	**154**	**344**	**456**	**470**	**413**	**428**	**476**	**520**	**514**	**384**	**238**	**4,565**

Appendix C: Sample Distribution by Acquirer Country

This table shows the sample distribution by acquirer country for the domestic and cross-border deals in our sample.

Acquirer Nation	Freq.	Percent	Cumulative Percent
Argentina	3	0.07	0.07
Australia	172	3.77	3.83
Austria	27	0.59	4.42
Belgium	35	0.77	5.19
Brazil	84	1.84	7.03
Canada	289	6.33	13.36
Chile	9	0.2	13.56
China	61	1.34	14.9
Colombia	10	0.22	15.12
Czech Republic	1	0.02	15.14
Denmark	26	0.57	15.71
Finland	44	0.96	16.67
France	237	5.19	21.86
Germany	54	1.18	23.04
Greece	26	0.57	23.61
Hong Kong	16	0.35	23.96
Hungary	4	0.09	24.05
India	31	0.68	24.73
Indonesia	10	0.22	24.95
Ireland-Rep	28	0.61	25.56
Israel	3	0.07	25.63
Italy	116	2.54	28.17
Japan	672	14.72	42.89
Malaysia	21	0.46	43.35
Mexico	17	0.37	43.72
Morocco	1	0.02	43.75
Netherlands	58	1.27	45.02
New Zealand	3	0.07	45.08
Nigeria	1	0.02	45.1
Norway	54	1.18	46.29
Peru	2	0.04	46.33
Philippines	11	0.24	46.57
Poland	26	0.57	47.14
Portugal	16	0.35	47.49
Russian Fed	51	1.12	48.61
Singapore	37	0.81	49.42
South Africa	49	1.07	50.49
South Korea	86	1.88	52.38
Spain	114	2.5	54.87
Sweden	81	1.77	56.65
Switzerland	112	2.45	59.1
Taiwan	35	0.77	59.87
Thailand	13	0.28	60.15
Turkey	7	0.15	60.31
Ukraine	6	0.13	60.44
United Kingdom	593	12.99	73.43
United States	1,213	26.57	100
Total	**4,565**	**100**	

Appendix D1: Employee Relations by Acquirer Country

Acquirer Country	*Employment Quality*	*Training & Development*	*Workforce Diversity*	*Health & Safety*
Argentina	32.40	65.44	29.92	92.64
Australia	41.04	38.83	53.87	54.18
Austria	54.14	67.91	48.09	39.36
Belgium	64.09	64.45	45.45	53.00
Brazil	68.48	68.05	55.06	64.94
Canada	39.25	34.02	37.64	47.46
Chile	31.49	75.57	26.66	24.19
China	51.34	44.01	25.96	32.45
Colombia	46.97	70.07	37.78	60.28
Czech Republic	69.88	77.75	57.75	28.70
Denmark	57.55	51.28	47.34	55.14
Finland	67.41	80.49	48.99	60.50
France	75.68	80.27	75.15	70.69
Germany	76.78	83.03	72.10	64.23
Greece	68.97	71.89	47.03	49.24
Hong Kong	59.87	52.90	29.53	32.32
Hungary	89.23	78.68	90.59	91.11
India	44.17	63.48	40.72	56.01
Indonesia	77.85	82.32	20.98	48.08
Ireland-Rep	48.92	54.77	36.26	60.90
Israel	40.17	53.52	27.13	22.58
Italy	65.19	67.30	55.06	54.92
Japan	35.38	49.26	56.11	43.16
Malaysia	43.12	60.08	32.29	40.76
Mexico	48.90	39.07	43.33	41.41
Morocco	61.42	91.92	15.37	13.76
Netherlands	67.16	74.46	59.01	66.74
New Zealand	69.24	45.92	46.72	51.77
Nigeria	10.76	24.15	22.39	36.98
Norway	71.62	68.91	78.47	68.48
Peru	34.57	38.57	16.40	65.72
Philippines	39.43	40.25	19.90	26.20
Poland	37.32	40.67	15.15	25.93
Portugal	71.44	68.41	38.12	54.58
Russian Fed	65.62	66.16	26.20	52.46
Singapore	34.12	61.59	30.50	43.31
South Africa	60.13	69.84	63.02	80.66
South Korea	50.96	57.32	44.88	45.92
Spain	78.55	83.34	73.74	69.33
Sweden	70.54	61.76	57.43	45.61
Switzerland	68.12	74.26	61.16	68.41
Taiwan	63.94	58.27	40.55	40.83
Thailand	57.37	63.45	46.76	65.24
Turkey	61.26	83.49	54.28	35.21
Ukraine	6.80	21.58	10.50	26.18
United Kingdom	64.47	64.34	58.79	62.57
United States	48.68	39.29	49.64	41.38
Total	**53.43**	**54.01**	**52.84**	**51.06**

Appendix D2: Employee Relations by Acquirer Industry

Acquirer Country	*Employment Quality*	*Training & Development*	*Workforce Diversity*	*Health & Safety*
Agriculture	39.11	63.68	33.83	62.72
Food Products	48.97	52.89	47.29	51.36
Candy & Soda	60.12	65.50	60.64	68.34
Beer & Liquor	53.09	57.60	52.77	50.77
Tobacco Products	56.56	72.32	67.90	75.18
Recreation	67.06	75.77	82.93	84.33
Entertainment	37.71	30.51	34.23	35.60
Printing and Publishing	51.93	53.60	57.89	41.32
Consumer Goods	67.16	63.90	65.03	67.29
Apparel	38.03	32.93	35.95	35.08
Healthcare	48.77	47.27	51.31	35.58
Medical Equipment	54.73	57.28	55.68	48.56
Pharmaceutical Products	54.55	50.76	58.70	58.86
Chemicals	56.58	60.98	62.46	74.67
Rubber and Plastic Products	46.17	52.71	52.82	47.38
Textiles	29.16	46.58	58.71	55.80
Construction Material	55.44	56.83	47.19	68.62
Construction	54.29	62.87	50.09	57.95
Steel Works Etc	56.20	60.69	47.43	64.61
Fabricated Products	26.36	41.31	26.45	27.67
Machinery	46.22	53.02	44.94	51.43
Electrical Equipment	59.70	62.68	63.86	61.10
Automobiles and Truck	55.20	71.49	61.77	69.38
Aircraft	57.26	64.19	56.70	72.50
Shipbuilding, Railroad Equipment	67.50	69.95	42.64	43.21
Defense	57.35	52.76	57.65	61.29
Precious Metals	37.69	38.26	34.76	52.93
Non-Metallic and Industrial Metal Mining	53.33	52.22	46.36	69.27
Coal	55.99	66.54	57.90	75.97
Petroleum and Natural Gas	52.52	49.26	48.67	64.20
Utilities	64.73	68.13	67.54	71.80
Communication	58.40	56.55	58.28	49.74
Personal Services	41.04	33.22	42.94	32.91
Business Services	51.76	48.71	49.20	43.61
Computers	46.65	50.94	49.90	43.67
Electronic Equipment	49.55	49.72	49.89	47.72
Measuring and Control Equipment	43.21	36.69	43.77	43.81
Business Supplies	65.95	60.88	63.32	68.39
Shipping Containers	50.28	65.73	57.95	60.30
Transportation	50.88	49.45	44.31	46.04
Wholesale	45.46	51.88	57.29	39.91
Retail	44.58	51.38	50.45	36.88
Restaurants, Hotels, Motels	67.89	59.72	59.75	43.18
Banking	64.45	62.17	56.84	42.35
Insurance	62.54	63.38	69.29	40.84
Real Estate	45.27	47.99	51.50	38.91
Trading	50.03	44.50	45.66	35.00
Other	53.21	51.19	61.16	55.31
Total	**53.43**	**54.01**	**52.84**	**51.06**

Appendix E. Robustness and Alternative Explanations: Instrumental Variable Approach

This table shows results for a two-stage instrumental variable regression (IV-2SLS) where the dependent variable in the first stage (Model (1)) is the acquirer's employment quality score and the independent variables are the industry-year average of the salaries and benefits expenses in the focal firm's industry peers (IV), along with a cross-border deal dummy, their interaction, and a set of firm-, deal-, and country-level control variables. The dependent variable in the second stage (Model (2)) is the acquirer's three-day CAR and the main independent variable is the acquirer's instrumented pre-merger employment quality score, a cross-border deal dummy, and their interaction, along with the same set of deal- (relative deal size, dummies for serial acquirers, toeholds, multiple bidders, all-cash financed deals, hostile deals, diversifying deals, and public targets, and relative deal size), firm- (acquirer ROA and leverage), and country-level (labor protection indices as in Botero et al., 2004) control variables. Each specification includes year, acquirer industry, and target industry fixed effects. The underidentification test refers to the Anderson canonical correlation statistics. Robust standard errors are reported in parentheses, and standard errors are clustered at the acquirer by target industry level. *, ** and *** stand for statistical significance at the 10%, 5%, and 1%, respectively.

	(1)	(2)
Dependent Variable: Acquirer CAR [-1,+1]	*1st stage: DV = Employment Quality*	*2nd stage: DV = CAR [-1, 1]*
Acquirer Employment Quality *t-1*		0.095**
		(0.046)
Acquirer Employment Quality *t-1* × Cross-Border		-0.081**
		(0.041)
Ind-Yr Average Salaries & Benefits Expenses *t-1*	1.942***	
	(0.516)	
Ind-Yr Average Salaries & Benefits Expenses *t-1* × Cross-Border	-1.039	
	(0.717)	
Cross-Border	15.39	4.866**
	(9.398)	(2.363)
Observations	4,511	4,511
F-test	27.10	1.954
Underidentification test (p-value)	0.004	
Deal-, Firm-, and Country-level Controls	Yes	Yes
Year FE	Yes	Yes
Acquirer and Target Industry FE	Yes	Yes

Appendix F: Alternative Explanations for the Attenuating Effect in Cross-Border Deals

This table shows regression results where the dependent variable is the acquirer's three-day CAR around cross-border and domestic deal announcements. The main independent variable is the acquirer's pre-merger employment quality score in terms of job security and monetary benefits, interacted with a cross-border deal dummy (Models 1 – 4). Model 5 interacts employment quality with an indicator for target firms having won an employment award for a sample of cross-border deals. Each specification includes a set of deal- (dummies for serial acquirers, toeholds, multiple bidders, all-cash financed deals, hostile deals, relative deal size, and public targets), firm- (acquirer ROA, market cap., and leverage), and country-level (acquirer and target country labor protection indices as in Botero et al., 2004) control variables. Each specification includes year, acquirer industry, target industry, and acquirer by target region fixed effects fixed effects. Robust standard errors are reported in parentheses, and standard errors are clustered at the acquirer industry by target industry level. *, ** and *** stand for statistical significance at the 10%, 5%, and 1%, respectively.

Dependent Variable: Acquirer CAR [-1,+1]	(1) Excl. US Acq.	(2) Excl.Serial Acq.	(3) OECD Targets	(4) Non-OECD Targets	(5) Cross-Border
Acquirer Employment Quality t-1	0.003	0.010**	0.008***	-0.001	-0.009***
	(0.003)	(0.004)	(0.003)	(0.007)	(0.003)
Cross-Border	1.274***	1.527***	1.225***	1.146	
	(0.331)	(0.398)	(0.401)	(0.870)	
Cross-Border x Acquirer Employment Quality t-1	-0.010**	-0.020***	-0.016***	-0.010	
	(0.005)	(0.005)	(0.005)	(0.008)	
Target Won Employee Award					-0.985
					(1.483)
Target Won Employee Award x Acquirer Employment Quality t-1					0.020
					(0.020)
Observations	3,243	3,407	3,492	1,073	2,015
Adj. R-squared	0.036	0.063	0.049	0.159	0.095
Deal-, Firm-, and Country-Level Controls	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Acquirer and Target Industry FE	Yes	Yes	Yes	Yes	Yes
Acquirer Region by Target Region FE	Yes	Yes	Yes	Yes	Yes

Appendix G. Employment Quality and Announcement CARs, Full Table

This table shows regression results where the dependent variable is the acquirer's three-day CAR around M&A announcements for domestic and cross-border deals. The main independent variable is the acquirer's pre-merger employment quality score in terms of job security and monetary benefits (0-100), interacted with a cross-border deal dummy in Panel B. Each specification includes a broad set of control variables, as well as year, acquirer industry, target industry fixed effects, and with acquirer by target region fixed effects (Model 2), acquirer and target country fixed effects (Model 3), acquirer country by target country fixed effects (Model 4), or acquirer firm fixed effects (Models 5 and 6). Model 5 includes the full sample of acquirers; Model 6 only includes acquirers that engage in both domestic and cross-border deals. Robust standard errors are reported in parentheses and are clustered at the acquirer by target industry level. *, ** and *** stand for statistical significance at the 10%, 5%, and 1%, respectively.

Dep.Var.: Acquirer CAR [-1,+1]	(1)	(2)	(3)	(4)	(5)	(6)
Acquirer Employment Quality$_{t-1}$	0.006**	0.006*	0.005*	0.006*	0.012**	0.001
	(0.003)	(0.003)	(0.003)	(0.003)	(0.005)	(0.006)
Acquirer Employment Quality$_{t-1}$ × Cross-Border	-0.013***	-0.014***	-0.012***	-0.012**	-0.014**	-0.014**
	(0.004)	(0.004)	(0.004)	(0.004)	(0.006)	(0.007)
Cross-Border	1.176***	1.137***	1.143***		1.129**	1.083**
	(0.294)	(0.312)	(0.307)		(0.446)	(0.472)
Relative Deal Size	-0.190	-0.166	-0.192	-0.144	-0.118	-0.237
	(0.168)	(0.186)	(0.174)	(0.174)	(0.176)	(0.191)
Acquirer Employment Laws Index	0.539	-0.456				
	(0.448)	(0.727)				
Acquirer Collective Relations Laws Index	-0.272	1.022				
	(0.550)	(0.788)				
Acquirer Social Security Laws Index	-0.0446	-0.614				
	(0.894)	(1.058)				
Acquirer Civil Rights Index	-0.373	0.00456				
	(0.728)	(0.972)				
Target Employment Laws Index	-0.638	-0.910				
	(0.566)	(0.677)				
Target Collective Relations Laws Index	0.939	0.342				
	(0.601)	(0.809)				
Target Social Security Laws Index	-0.101	-0.0710				
	(0.587)	(0.920)				
Target Civil Rights Index	-0.0356	0.195				
	(0.636)	(0.839)				
Serial Acquirer Dummy	-0.0584	-0.146	-0.0976	-0.0930		
	(0.131)	(0.151)	(0.139)	(0.190)		
Acquirer ROA	0.790	1.010	0.454	1.474	-0.711	-0.827
	(0.836)	(0.851)	(0.825)	(0.949)	(1.530)	(1.632)
Acquirer Leverage	-0.165	-0.192	-0.284	-0.158		
	(0.369)	(0.373)	(0.380)	(0.374)		
Toehold Dummy	-0.0223	-0.0563	0.0218	-0.0380	0.0264	0.219
	(0.154)	(0.163)	(0.157)	(0.178)	(0.253)	(0.298)
Acquirer Market Cap. (log)	-0.00581	-0.00482	-0.00322	-0.0704		
	(0.0481)	(0.0483)	(0.0510)	(0.0598)		
Multiple Bidders Dummy	-0.592	-0.775*	-0.633	-0.711	-0.804*	-0.942*
	(0.434)	(0.441)	(0.430)	(0.468)	(0.444)	(0.546)
Cash-Financed Deals	0.126	0.129	0.124	0.185	0.196	0.228
	(0.141)	(0.146)	(0.150)	(0.158)	(0.179)	(0.217)
Hostile Dummy	0.595	0.673	0.638	0.884	-0.397	-0.641
	(0.676)	(0.662)	(0.677)	(0.689)	(0.801)	(0.952)
Diversifying Deal Dummy	0.00460	0.0210	0.0618	0.0650	0.00879	0.0215
	(0.131)	(0.138)	(0.135)	(0.154)	(0.213)	(0.258)
Public Target Dummy	-0.262*	-0.291*	-0.256	-0.447***	-0.327*	-0.280
	(0.157)	(0.155)	(0.165)	(0.161)	(0.194)	(0.232)
Constant	-1.782	-1.689	-3.746	4.895***	-1.055	0.548
	(1.103)	(1.389)	(2.377)	(0.758)	(1.784)	(1.891)
Observations	4,565	4,565	4,709	4,709	4,565	2,363

Adj. R-squared	0.037	0.067	0.063	0.161	0.054	0.078
Firm and Deal Level Controls	Yes	Yes	Yes	Yes	Yes	Yes
Acquirer and Target Country Level Controls	Yes	Yes	No	No	No	No
Acquirer and Target Industry FE, Year FE	Yes	Yes	Yes	Yes	No	No
Acquirer Region x Target Region FE	No	Yes	No	Yes	No	No
Acquirer Country FE	No	No	Yes	No	No	No
Target Country FE	No	No	Yes	No	Yes	Yes
Acquirer Country x Target Country FE	No	No	No	Yes	No	No
Acquirer Firm FE	No	No	No	No	Yes	Yes

Chapter 4

Two-Stage Acquisitions and Deal Premiums

Abstract – Between 1990 and 2015, the fraction of M&A deals in which an acquirer obtained a minority stake in the target firm before making a majority stake offer amounted to almost 20% of the global public M&A volume. This paper investigates how such a two-stage acquisition strategy affects the takeover process in terms of bid premiums, shareholder returns, and post-deal performance. Using a treatment effects model for a global sample of M&A deals, I find that a two-stage acquisition strategy reduces information asymmetries and mitigates pre-emptive overbidding. I confirm these results for a US sample using the increase in trade secret protection across states as an exogenous shock to target value uncertainty and the reduction in import tariffs across industries as an exogenous shock to potential bidder competition. Overall, my results suggest that two-stage acquisitions can offer benefits to acquiring firms when information asymmetries increase or when potential bidder competition is high.

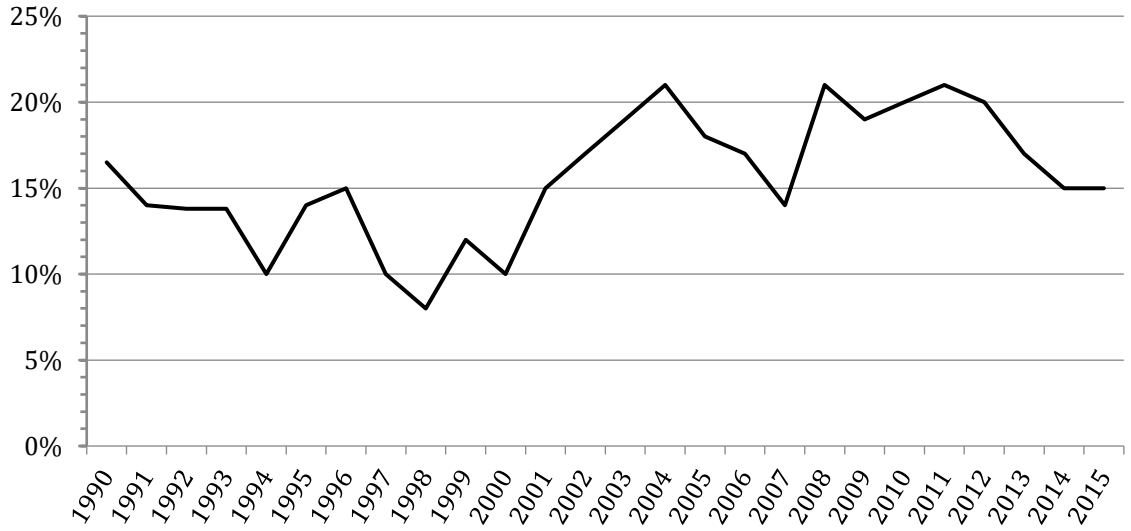
Keywords: Mergers and Acquisitions, Minority Acquisitions, Overbidding, Information Asymmetries, Trade Secret Protection

1. Introduction

Between 1990 and 2015, the global market for public mergers and acquisitions (M&As) amounted to a volume of more than $20 trillion. 15% of these deals involved acquirers that had first obtained a minority stake in the target firm before obtaining majority control, with the fraction of such two-stage acquisitions amounting to almost 20% in the 2010s.[58] A two-stage acquisition strategy represents a distinct choice to acquiring a toehold and to immediately acquiring a majority stake: owning a sizeable minority stake often results in board representation and reduces information asymmetries between targets and acquirers, while at the same time deterring rival bidders from making competing offers. Despite a large literature on M&As, there is little evidence on how these two effects influence firms' decision-making process when moving from a minority to a majority stake and, consequently, the deal premium and returns to shareholders when making a majority takeover bid. This paper aims to fill this gap by using a treatment effects model for a global sample of M&A deals, and by exploiting the increase in trade secret protection across US states as an exogenous shock to target value uncertainty and the reduction in import tariffs across US industries as an exogenous shock to potential bidder competition.

Figure 1: Evolution of Two-Stage Deals over Time (1990-2015)

This figure plots the fraction of two-stage acquisitions for a sample of global completed M&A deals involving public targets between 1990 and 2015. The solid line represents the ratio of the number of two-stage deals relative to the total number of M&A deals in a given year.



[58] Minority stakes are defined here as deals in which an acquirer obtains more than 5% but less than 50% of the target's shares. See Figure 1 for a graphic representation of the evolution of two-stage deals over time.

Ex-ante, it is not obvious whether two-stage acquisitions should have higher or lower premiums compared to direct (one-stage) majority acquisitions in which the acquirer does not hold a minority stake prior to making the offer. On the one hand, two-stage acquisitions may increase deal premiums by reducing target value uncertainty. In the presence of information asymmetries between acquirers and targets, acquirers reduce their offered premiums to avoid overpaying for "bad" targets (Akerlof, 1970; Coff, 1999; Povel and Singh, 2006). Two-stage acquirers however own a minority stake in the target, which encourages information sharing and cooperation through board seats and informal meetings with management and employees (Fee, Hadlock, and Thomas, 2006). They are therefore able to assess the target's value – including the value of potential merger synergies and post-merger restructuring benefits – more accurately, resulting in relatively higher premiums.

On the other hand, two-stage deals may decrease deal premiums by deterring rival firms from making competing offers. Pre-emptive bidding theory states that, when there is more potential bidder competition, acquirers strategically raise their bids to deter rival bidders from making competing offers (Fishman, 1989).[59] However, two-stage acquirers' minority stakes can also deter competing offers, as rival bidders have to offer a considerably higher price to get the minority stake acquirer to sell (Betton, Eckbo, and Thorburn, 2009). Two-stage acquirers thus have fewer incentives to strategically raise their bids, resulting in lower premiums being offered relative to one-stage acquirers without a minority stake.

Despite the popularity of M&As as a field of study, there is little evidence on how two-stage acquisitions affect the acquisition process and deal premiums. A first important challenge is acquirers' choice of using a two-stage versus a one-stage acquisition strategy. This is a non-random choice, based on a set of deal and firm characteristics that may also affect the deal premium. A second challenge is the identification of the channels through which two-stage acquisitions affect the takeover process. There is an inherent relationship between acquirer-target information asymmetries, potential bidder competition, and other acquirer- and target-level characteristics that affect deal premiums and the decision to use a two-stage acquisition

[59] In the takeover of Cadbury by Kraft for example, Kraft raised its offer when a counteroffer by Hershey became likely, although it never materialized. Therefore, the *potential* for competing offers to arise is enough to induce pre-emptive bidding. Aktas, de Bodt, and Roll (2010) indeed report that bid premiums are higher when there is more potential competition.

strategy. Existing studies have therefore not been able to fully disentangle the information channel from the competition channel and from other acquirer-, target, and deal-level effects, such as firms' innovation level or product market effects. This paper attempts to resolve these issues by using a treatment effects model to account for firms' selection into one- and two-stage acquisitions, and by using a difference-in-difference analysis based on two US events to investigate the channels through which two-stage deals affect the takeover process.

First, I investigate the effect of mitigating pre-emptive bidding and resolving uncertainty in a global sample of one-stage and two-stage M&A deals. I estimate a treatment effects model to control for the likelihood of engaging in a two-stage versus a one-stage acquisition, and show that two-stage acquirers pay on average 20% to 30% lower premiums than one-stage acquirers, even after taking into account the minority stake premium and controlling for acquirer firm fixed effects. Consistent with two-stage deals not being affected by target value uncertainty, two-stage acquirers increase their offers by 11% when target industry stock volatility is high. This uncertainty-resolving effect is also stronger when targets and acquirers are geographically closer, as this facilitates the transfer of information. When there is a higher number of potential bidders in the target's industry or when there is a merger wave in the target's industry, one-stage acquirers increase their bids by 2.2% to deter competing offers. Two-stage acquirers however reduce their offers, consistent with these deals not being affected by bidder competition and pre-emptive bidding behavior.

I then exploit two events in a sample of US deals to further identify the channels through which two-stage deals affect the takeover process. To identify an exogenous increase in target value uncertainty, I use the staggered adoption of the Uniform Trade Secrets Act, or UTSA, across 48 US states between 1975 and 2013. The UTSA resulted in a dramatic increase in trade secret protection (Png, 2017). It became harder and costlier for acquirers to obtain information on the target's value and its competitive advantage relative to its industry peers, as trade secrets are generally not disclosed to outsiders, not even in the due diligence process following a takeover bid (Castellaneta, Conti, and Kacperczyk, 2017). Two-stage acquirers are however expected to suffer less from such an information disadvantage as they have easier access to the firm's trade secrets through their presence at board meetings and informal contacts with key employees.

I use reductions in import tariff rates across US industries to identify an exogenous increase in the number of potential rival bidders. Lower import tariff rates lower the cost of entry for foreign rivals, increasing the level of product market competition faced by domestic firms (Frésard and Valta, 2016). Such an industry shock triggers a re-allocation of resources and increases M&A activity between incumbent domestic firms (Breinlich, 2008; Srinivasan, 2014), in turn increasing the level of bidder competition. Therefore, as holding a minority stake deters competing offers without having to raise the bid premium, two-stage acquirers should not increase their premiums following an increase in potential M&A competition.

My results confirm that one-stage acquirers respond to the increase in information asymmetries following the UTSA enactment by offering 2.3% lower premiums. Two-stage acquirers however increase their offers by 11%, suggesting that they are not affected by this increase in information asymmetries. These findings are echoed by the acquirer, target, and combined-firm announcement returns which are significantly more positive for two-stage deals post-UTSA enactment, and by the increase in the use of two-stage deals after the increase in trade secrets protection. I document that in the year following a large decrease in import tariff rates, bidder competition significantly increases. Consistent with two-stage acquirers not having to raise their offers to win (or deter) a potential takeover contest, two-stage acquirers respond to the increase in bidder competition by decreasing their offers, whereas one-stage acquirers do not decrease their offers. These benefits are echoed by the significantly more positive acquirer, target, and combined firm CARs for two-stage acquirers and the increased use of two-stage deals following an exogenous increase in M&A competition.

My sample also allows me to investigate if and how the uncertainty-resolving and competition-reducing effects of minority acquisitions affect firms' decision-making process when expanding a minority stake to a majority stake. Using a Cox hazard model to estimate the time between the minority and majority acquisition, I find that both effects play a role. Consistent with the idea that processing information to resolve uncertainty takes time, targets with more uncertain valuations delay acquirers' decisions to expand. An increase in potential competition in the target's industry however does not delay the decision to expand, but it increases the likelihood of a minority stake being sold. Moreover, when a minority stake is sold, acquirers can obtain returns of 35%, particularly when selling to a third-party majority acquirer.

Lastly, I find that two-stage deals also affect deal completion and long-run performance. A staged acquisition strategy significantly increases the likelihood of a deal being completed and, conditional on deal completion, two-stage deals are completed significantly faster. Targets in two-stage deals are also less likely to be divested, and they perform better in terms of long-term profitability. In a set of robustness tests, I rule out that my findings are driven by anti-trust issues, target undervaluation, negative events in the target, specific countries, or alternative uses of the money invested in the minority stake. Taken together, these results indicate that two-stage acquisitions increase the efficiency and accuracy of the takeover bidding process by resolving target value uncertainty and mitigating overpayment triggered by pre-emptive bidding. In addition, they trigger significantly more positive announcement returns for both target and acquirer shareholders, indicating that shareholders value the benefits of two-stage deals.

This paper contributes to several strands of the academic literature. It relates to the large literature on toeholds, which investigates the motives and price implications for toehold bidding in M&A contests. In contrast to the minority acquisitions in my sample, toeholds are generally small stakes acquired in a relatively short period leading up to the majority takeover bid with the goal of reducing the number of shares that must be purchased at the full takeover price. Although the effects I investigate can also be applied to toehold bidding[60], my analysis differs on a number of important dimensions. First, the minority stakes in my sample are considerably larger than what is generally considered a toehold[61] (they are on average 26% of the target's outstanding shares) and they are held for a longer time before the majority stake offer is made (about 1.4 years). [62] Second, most studies on toeholds indicate that the acquirer held target shares prior to the takeover bid, but do not investigate when or at what price the toehold was acquired.[63] In contrast, my sample enables me to study in detail the timing and premium of the minority

[60] Betton and Eckbo (2000) for example report that toeholds are associated with lower offer premiums and argue that is consistent with a competition-deterring effect of toeholds. However, to the best of my knowledge, no papers have directly investigated the competition-deterring or the uncertainty-reducing effect for toeholds.
[61] In theory, toeholds in the US should be just under 5% of the target's outstanding shares as this does not require firms to file a form 13D stating the acquirer's intentions.
[62] Standstill agreements may limit the acquisition of a toehold in the two to six months before the public announcement of the offer (Bruner, 2004; Boone and Mulherin, 2007). However, the minority stakes in my sample are on average held for 1.5 years, indicating that these are likely to be different types of transactions.
[63] The only exception is Betton, Eckbo, and Thorburn (2009) who – due to data limitations in SDC – are only able to distinguish between short-term and long-term toeholds that were held less or more than 6 months before the takeover bid.

acquisition that precedes a majority stake offer. Third, many studies investigate toeholds in the context of takeover contests involving multiple bidders. My study only focuses on single-bidder contests to rule out effects from strategic bids by competing rivals. Fourth, given that toeholds should theoretically be small stakes acquired close to the initial takeover bid that do not yield board seats, it is unlikely that they are able to resolve uncertainty to the same extent as the minority stakes in my sample. By not limiting the sample to stakes acquired close to the majority takeover bid, I can investigate how the flow of information between target and acquirer affects merger premiums and performance.

This paper also contributes to the literature on minority acquisitions. Most of these studies investigate why minority acquisitions are preferred over complete independence, and find that they can facilitate cooperation between two independent firms (e.g. customers and suppliers) in an incomplete-contracts framework by better aligning the acquirer's and target's incentives and by encouraging information sharing between trading parties (Allen and Phillips, 2000; Fee et al., 2006). In transactions involving relationship-specific effort or assets (where the value of the asset depends on firms' continued interaction and cannot be used outside of the transaction), it is often unrealistic to write a complete contract on all possible states of nature (and even if it were possible, there are certain states of natures that are not ex-ante contractible because they cannot be verified ex-post by third parties such as courts) (Grossman and Hart, 1986; Hart and Moore, 1990). In the context of M&A, a hold-up problem may limit an acquirer's incentives to invest in the deal if it fears opportunistic behavior by the target and it may limit a target's incentives to provide information if it fears opportunistic behavior by the acquirer. By aligning firms' incentives and encouraging information sharing and cooperation, equity stakes play an important role in reducing the risk of expropriation and hold-up problems (Fee et al., 2006).

Empirical and anecdotal[64] evidence indeed shows that resolving uncertainty is a key driver for firms to acquire minority stakes. Filson and Morales (2006) focus on equity stakes in biotechnology alliances and develop a model showing that minority stakes facilitate monitoring and allow acquirers to reduce their uncertainty about the target's

[64] For example, in May 2016, the UK software company Sage Group took a 21% stake in Fairsail, a fast-growing tech scale-up, with the aim of providing capital for Fairsail and developing a shared product. One year later, once the shared product has been proven successful, Sage Group announced it would fully acquire Fairsail.

R&D before committing more resources to the joint project. Ouimet (2013) explains the trade-off between minority and majority acquisitions and shows that minority acquisitions are more likely when it is important to keep target managerial incentives intact, when the value of the target is uncertain, and when a financially constrained target can benefit from certification by the acquiring firm. The latter finding is confirmed for a global sample by Liao (2014), who also reports that minority stakes are more likely in industries with high R&D expenses in countries with good minority shareholder protection. However, these studies focus on the decision to acquire a minority stake and do not examine what happens after the stake is obtained. In contrast, this study investigates how and when firms decide to expand a minority stake to a majority stake and how the premium and shareholder returns are affected when expanding to a majority stake.

Finally, this study relates to the young literature on Corporate Venture Capital (CVC), venture capital firms that are structured as subsidiaries of traditional corporations and that systematically make minority stake investments in early-stage entrepreneurial ventures. As in two-stage acquisitions, firms engage in CVC investments to acquire information and increase their innovative knowledge (Macmillan et al., 2008). In contrast to two-stage acquisitions however, the information and innovation knowledge acquired through CVC is typically internalized by the firm and used to recover a deteriorating innovation level, rather than to make efficient takeover decisions (Ma (2016) reports that less than 5% of a CVC investor's portfolio companies are ultimately acquired). Moreover, CVC companies tend to own a portfolio of investments and their sole purpose is to actively build this portfolio. They are generally pooled together with traditional VC firms, which are excluded from my sample, limiting the concern that the acquirers in this paper are CVC investors.

The paper is organized as follows. Section 2 describes the data sources, identification strategy, and summary statistics. Section 3 examines the premium difference between two-stage and one-stage acquisitions, and Section 4 investigates the decision to expand or sell a minority stake. Robustness tests are presented in Section 5 and Section 6 concludes.

2. Data, Sample Selection, and Identification

2.1 Data Sources and Sample Selection

I obtain information on global minority and majority acquisitions from the Securities Data Corporation (SDC) M&A database. I include all deals announced between 1990 and 2015 for which information on the premium offered is available.[65] Minority acquisitions are defined as deals where less than 50% but more than 5%[66] of the target's shares are acquired, and majority acquisitions are defined as deals where more than 50% of the target's shares are acquired.[67] I then define two-stage acquisitions as deals in which I can match the target's and acquirer's identifiers in both the minority and the majority acquisition sample and where the minority acquisition preceded the majority acquisition with no other acquirer obtaining control in the target after the initial minority acquisition. One-stage acquisitions are defined as deals in which the acquirer did not hold shares before making the majority bid. I match this sample with accounting and stock price information in Compustat North America and CRSP using the CUSIP identifier for US firms, and I match non-US firms based on their SEDOL or Datastream Code with accounting information in Compustat Global and Worldscope and with stock price information in Datastream. I also update non-matched European observations based on name, country, and industry with accounting data in Bureau van Dijk's Amadeus database.

I follow the literature and exclude acquirers in highly regulated industries such as financial firms (SIC codes 6000-6999) and firms in the utilities industries (SIC codes 4900-4949). I also drop deals in which the acquirer and target have the same ultimate parent firm, as these deals are often part of a firm's internal restructuring process. As some firms acquire small stakes in the same target multiple days in a row, I only include the last minority stake acquisition in my main analysis to avoid double-counting such deals (note that my conclusions are not affected when considering the first minority stake

[65] This requirement restricts my sample to publicly listed targets. Although the uncertainty-reducing effect of two-stage acquisitions should be stronger for private targets, they are excluded from the sample due to the unavailability of information on merger premiums.

[66] The 5% lower boundary for minority acquisitions is included to make sure the initial minority stake is meaningful to both target and acquirer. Removing this restriction does not alter my conclusions however, as only 7% of my sample consists of equity stakes smaller than 5%. This in line with Ouimet (2013), who reports that only 16% of her minority acquisition sample represent such small equity stakes.

[67] I use a 50% cut-off to identify important expansions of minority stakes, as this always results in an acquirer obtaining majority control. However, my conclusions can be applied to any situation where an acquirer first obtains a small equity stake before deciding to commit more resources to the target, such as *de facto* control acquisitions of less than 50%.

acquisition, instead). I also exclude deals that were part of a takeover contest involving multiple bidders and in which multiple bidders made offers for the same target within a limited time period. This is to ensure I do not capture firms' and markets' reactions to rival offers.

Deal premiums are calculated following the approach in Officer (2003) and Moeller et al. (2004), as the takeover premiums provided by SDC are subject to large outliers.[68] My specifications use the majority acquisition premium, as well as a weighted premium that takes into account the premium paid at the minority stake acquisition. For two-stage acquirers, the weighted premium equals the combination of the minority and majority stake premium, weighted by the fraction of shares acquired in each transaction. In additional tests, I also investigate the acquirer and target's market reactions at the deal announcement. These are calculated as the three-day CARs in the [-1,+1] window around the deal announcement. Combined firm CARs are calculated as the market value-weighted average of the acquirer and target CARs.

Appendix A shows the sample distribution by target country. US targets make up 52% of the total sample, followed by Canadian (13%) and UK (9%) targets. The large fraction of US targets mainly arises due to availability of information on bid premiums in SDC. If this requirement were to be removed, US targets would make up less than 30% of the sample. This large share of US targets does not affect the significance of my results however, as I show in the robustness tests in Section 5. Splitting the sample in one-stage and two-stage acquisitions, Appendix A shows that two-stage acquisitions occur relatively more often in Japan (22%) and Australia (16%), with US targets only making up 15% of the targets in two-stage deals.

The sample distribution by target 2-digit SIC industry is shown in Appendix B. The largest industries in the full sample are business services (16%), oil and gas extraction (8%), and metal mining (8%). The distribution of two-stage acquisitions is similar to that of the full sample (the top three industries are business services (9%), metal mining (9%), and communications (7%)), indicating that the results are not driven by particular industries.

[68] SDC provides different data sources for the reported takeover premiums, which give inconsistent premium estimates. Officer (2003) mitigates this problem by calculating a combined premium estimate, which integrates the different data sources and limits the premium estimate to be between 0 and 2, with the premium being left missing if it is outside these boundaries. Variable definitions are given in Appendix I.

2.2 Identification Strategy

2.2.1 Treatment Effects Model

The model used to estimate the effect of a two-stage acquisition strategy on the merger premium is described below. The main dependent variable is the weighted premium offered in a majority takeover bid, which equals the majority stake premium for one-stage acquirers and the combination of the minority and majority premiums, weighted by the fraction of shares acquired, for two-stage acquirers. However, the decision to engage in a two-stage acquisition versus a one-stage acquisition is an endogenous choice which may be driven by observable and unobservable variables that also affect the merger premium. To take into account firms' selection into a one- or two-stage acquisition strategy, I estimate a treatment effects model. Similar to the standard Heckman model, it is a two-stage model that corrects for self-selection by including the inverse Mills ratio in the second stage. It differs from the Heckman model in that it includes both the self-selected and unselected samples (whereas the standard Heckman model only estimates the self-selected subsample) and it has an endogenous indicator variable (*Two-stage Acquisition*) as one of the independent variables.

The first stage estimates the likelihood of a target being acquired in a two-stage acquisition versus a one-stage acquisition based on a probit model, using a set of firm-, deal-, industry-, and country-level control variables and fixed effects as described below. As an identifying variable, it includes an indicator capturing whether an acquirer is likely to be financially constrained, proxied by having an above-median HP index.[69] The HP index is constructed as in Hadlock and Pierce (2010) and is argued to be a more exogenous measure of financial constraints relative to more endogenous measures such as the leverage ratio or the Kaplan and Zingales (1997) index, as it is based on relatively exogenous firm characteristics such as the firm's size and age. Financially constrained acquirers may not have sufficient resources to immediately acquire a majority stake in a target firm, making them more likely to use a two-stage strategy (Ouimet, 2013). However, financial constraints should only affect the premium through their effect on the inverse Mills ratio. Although it is not possible to statistically test the validity of the

[69] Although the Hadlock and Pierce (2010) HP index is arguably a less endogenous measure of financial constraints, I also investigate several other measures in Appendix D, including indicators for whether the acquirer has a top quartile leverage ratio, top-quartile HP index, and the acquirer's FC index (variable definitions are in Appendix I).

exclusion restriction, I provide theoretical and empirical arguments to support the use of the financial constraints proxy.

First, Gorbenko and Malenko (2017) theoretically show that, although financial constraints affect the likelihood of doing an M&A and the method of payment, they do not directly affect a bidder's willingness to pay: a bidder will increase its offer until the premium reflects the value of the target under the bidder's ownership, and the winning bidder will signal its type (high or low synergy) through the method of payment rather than through the premium.

Second, one way through which the premium could still be affected is if financially constrained acquirers have higher valuations of non-constrained targets than non-constrained acquirers, as constrained acquirers may incorporate the benefits from accessing the target's financial resources in their offers. In that case, financially constrained acquirers should be willing to offer higher premiums for non-constrained targets relative to non-constrained acquirers. I empirically investigate this concern in Appendix E, and find no supportive evidence for financially constrained acquirers offering higher premiums for non-constrained targets.

Third, financial constraints could affect the deal premium if these deals are done by serial acquirers. Serial acquirers are more likely to be overconfident, and overconfident managers are known to overpay for their acquisitions (Billett and Qian, 2008; Malmendier and Tate, 2008). If serial acquirers are more likely to be financially constrained at the end of their takeover sequence, this could result in a positive relation between an acquirer's financial constraints and the deal premium. Column (2) in Appendix E rules out this alternative explanation.

In addition, given that I also use the treatment effects model to study how two-stage deals affect other aspects of the deal process, any theory explaining a direct relation between acquirer financial constraints and the deal premium also has to explain the relation between financial constraints and the time to deal completion, likelihood of divestiture, and long-run deal performance. I am not aware of a theory that is able to explain such relations. The first stage regression specification is therefore as follows:

$$P(\textit{Two-Stage Acquisition}_i) = \alpha + \beta \textit{Above-Median Acq. HP Index}_{jt} + \gamma F_{jkt} + \delta D_i + I_{jk} + \theta_t + C_k + \varepsilon_{jkt} \quad (1)$$

F_{jkt} indicates a set of firm-level control variables, including the target's and acquirer's leverage ratios and return on assets, the acquirer's market capitalization, indicators for high-tech targets and acquirers, an indicator for targets in volatile industries, and the target's MTB ratio. Accounting variables are measured the year before the minority acquisition for two-stage acquirers, and the year before the majority acquisition for one-stage acquirers. D_i indicates a set of deal-level control variables, including the relative deal size and indicators for cross-border, hostile, stock-financed, tender offers, and diversifying deals, and an indicator capturing merger waves in the target's industry.[70] The model includes target and acquirer industry fixed effects (I_{jk}) and year (θ_t) fixed effects. As different countries may have different regulations regarding acquisitions of minority stakes before making a takeover bid, target country (C_k) fixed effects are also included.

$$Premium_i = \alpha + \beta_1 TwoStage\ Acquisition + \beta_2 IMR_i + \gamma F_{jkt} + \delta D_i + I_{jk} + \theta_t + C_k + \varepsilon_{jkt} \qquad (2)$$

The second stage model then estimates the premium difference between two-stage and one-stage deals using a similar set of firm-, deal-, and industry-level control variables (with the exception of the above-median HP index indicator) along with measures of the target country's rule of law and accounting standards, and adds the inverse Mills ratio to adjust for potential selection bias. Standard errors are corrected for the use of a two-step estimation procedure (Heckman, 1979).

2.2.2 Uniform Trade Secrets Act

Measuring target value uncertainty is not straightforward, as the level of information asymmetries between bidders and targets is likely related to other firm- or deal-level characteristics that affect the deal premium. I therefore need an exogenous source of variation in uncertainty to test the effect of target value uncertainty on the takeover premium in one-stage and two-stage acquisitions. I exploit the staggered enactment of the Uniform Trade Secrets Act (UTSA) in the US, which was aimed at alleviating the uneven development of trade secrets regulations across states. Prior to the enactment,

[70] Although not reported, my results do not qualitatively change when including the target's or acquirer's run-up as control variables in the second step of the treatment effects model. Results are available on request.

trade secrets were governed by state-level common law, which varied greatly from state to state. After the enactment, trade secret protection became more extensive and clarified the remedies and penalties for misappropriation, thereby strengthening overall protection (Samuels and Johnson, 1990; Malsberger et al., 2008; Png, 2017). Specifically, it increased protection by stating that the improper acquisition of a trade secret, without its actual use or disclosure, qualifies as a misappropriation and that information does not need to be used continuously in order to qualify as a trade secret. It also gave the owner of a trade secret three years after misappropriation to begin legal action, and it increased the severity of punishment by allowing punitive damages of up to twice the actual damage.

The UTSA was enacted by 48 US states between 1975 and 2013, with the exception of Massachusetts and New York. Although my sample period only starts in 1990, it still includes the UTSA enactment by Michigan (1998), Missouri (1995), New Jersey (2012), Ohio (1994), Pennsylvania (2004), South Carolina (1992), Tennessee (2000), Texas (2013), Vermont (1996), and Wyoming (2006). Importantly, Png (2017) and Castellaneta et al. (2017) show that the timing of the UTSA enactment across states was unrelated to economic or political conditions and to corporate lobbying. In unreported tests, I indeed find no significant differences between treated and untreated states in terms of GDP and GDP growth before the enactment. Although M&As are often governed by the law of the state in which the target firm is incorporated, my identification uses the state of the target's headquarters: the applicable law is that of the state where the misappropriation of trade secrets actually occurred, which is more likely to be the firm's main state of business.

Trade secrets encompass information on firms' marketing data, manufacturing know-how, chemical processes, and technical data and are an important dimension of a firm's intellectual capital and hence its overall value (Jorda et al., 2007). Following the increase in trade secret protection, certain information that was unprotected became eligible for protection and thus became harder to obtain.[71] Although stronger protection of trade secrets reduces the risk of misappropriation by competitors, it also limits the amount of firm-specific information available to potential acquirers, increasing information asymmetries between targets and acquirers. Moreover, even if the target

[71] For example, the UTSA extended the definition of trade secrets to also cover "negative know-how", knowledge about attempted but failed techniques and technologies (Malsberger et al., 2008).

itself does not own valuable trade secrets, its competitors may still be affected by the increase in trade secret protection. As information about competitors' assets is key to establishing whether a target owns a competitive advantage, this also constrains information regarding the target's potential value (Peteraf, 1993). An increase in trade secret protection thus increases the uncertainty about the target's value from the bidder's perspective, even if the target does not own trade secrets itself or if it would disclose its trade secrets in the due diligence process.[72] These increased information asymmetries between targets and acquirers then result in lower premiums after the UTSA enactment, as shown by Castellaneta et al. (2017).

Two-stage acquirers that own a minority stake in the target may however have a comparative advantage. As important blockholders, they can more easily obtain valuable private data and information on trade secrets through their formal presence at annual meetings[73] or through informal talks with CEOs, employees, and customers. An increase in trade secret protection therefore increases the information asymmetries for one-stage acquirers, but it should not affect two-stage acquirers to the same extent. Premiums in two-stage acquisitions should then be higher than in one-stage deals, as one-stage acquirers are more likely to respond to the increase in trade secret protection by offering lower premiums. [74]

2.2.3 Reductions in Import Tariff Rates

To test the effect of a potential increase in M&A competition, I use large reductions in industry-level import tariff rates in the US as an exogenous shock to the number of potential bidders. Decreasing entry barriers increases the likelihood that foreign rivals will enter and compete on the product market with domestic firms. The literature on trade liberalization shows that tariff reductions substantially increase domestic (Breinlich, 2008) and cross-border (Neary, 2007) M&A activity, as more intense product market competition triggers a re-allocation of assets across firms and industries, making

[72] This is however unlikely, as firms rarely disclose core information in the due diligence process before the transaction is concluded (Weakley, 2014).
[73] Minority blockholders owning more than 10% of the firm's shares are considered to be insiders by US regulations as they can often claim board seat(s) and hence influence the firm's decisions.
[74] The UTSA likely affects firm value and hence the deal premium through channels other than target value uncertainty. High-skilled workers and innovative projects may for example become more valuable as they are better protected. However, in order to explain my results, they should have differential effects on the merger premium for one-stage and two-stage acquirers. This is unlikely to occur through channels other than through the reduction in uncertainty.

specific assets cheaper and increasing overall M&A activity.[75] I indeed find that M&A activity increases by 15% in the year after a (large) reduction in import tariff rates. Similar to the effect of merger waves on bid premiums, this implies that deals involving targets in industries subject to large tariff cuts face an increase in the number of potential bidders, which should translate in higher premiums being offered. As before, two-stage acquirers are expected to be less affected by an increase in the potential number of rival bidders as their minority stake deters competing offers. They should then offer lower premiums relative to one-stage acquirers.

Industry-level import tariff reductions are arguably exogenous to the premium offered in takeovers and M&A activity in general. In the US, any tariff reductions done by the USITC (United States International Trade Commission) should be in accordance with the GATT/WTO agreements. Although they are not randomly assigned and they are not entirely unanticipated – the WTO agreements include a roadmap for phased tariff reductions – there is considerable ex-ante uncertainty regarding the extent to which foreign firms will be successful in penetrating the domestic market (Bernard, Jensen, Redding, and Schott, 2012). In addition, any firm-level variables affected by tariff cuts would have to influence the premiums paid by two-phase acquirers in a systematically different manner than those paid by one-phase acquirers in order to invalidate the results.[76] Import tariff cuts can thus be considered exogenous industry-level shocks to US domestic firms in terms of their effect on the merger premium.

I obtain data on US import tariffs at the four-digit SIC level from Schott (2010) up to 2005, and update it up to 2015 using the data on imports and exports on Schott's website.[77] Following the literature (Frésard, 2010; Valta, 2012, Xu, 2012), a large tariff

[75] Moreover, foreign firms have stronger incentives to acquire production capacity through M&As in order to benefit from improved trading conditions (Breinlich, 2008). There may however also be a counterbalancing effect for horizontal M&As in that decreases in trade costs make it easier to serve a foreign market via exports, reducing the incentives to establish production capacity via M&As. Although empirical evidence is inconsistent on which effect dominates, I focus on domestic M&A activity to reduce concerns regarding this effect.

[76] For example, Lileeva and Trefler (2010) show that import tariff cuts increase foreign competitors' innovation output, implying that target firms that rely heavily on innovation face a stronger increase in competition. It could however be that those targets are also more uncertain to potential acquirers, and hence are more likely to be acquired using a two-stage acquisition strategy. Two-phase acquirers then face a stronger increase in competition relative to one-stage acquirers, such that foreign competitors' increase in innovation biases against finding evidence for a competition-reducing effect of two-stage acquisitions. The effects documented in Table 5 should thus be stronger in the absence of such an effect.

[77] http://faculty.som.yale.edu/peterschott/sub_international.htm

reduction is defined as a yearly drop in an industry's import tariff rate that is larger than twice the median tariff rate reduction in that industry over the whole sample period.

2.3 Descriptive Statistics

Table 1 reports summary statistics for the sample of one-stage and two-stage acquisitions for which at least the bid premium for the majority stake acquisition is available. Panel A reports firm-level characteristics for bidders and targets, with accounting variables measured the year before the minority stake bid for the two-stage acquirers, and the year before the majority takeover bid for the one-stage acquirers. The difference in means shows that targets and acquirers in two-stage acquisitions differ on a large number of dimensions relative to those in one-stage acquisitions. Two-stage acquirers have significantly higher industry-adjusted leverage ratios and Hadlock and Pierce (2010) HP indices relative to one-stage acquirers. This suggests that acquirers may prefer two-stage acquisitions when they do not have sufficient funds available to acquire a majority stake in one step.[78] Two-stage acquisitions are also less likely to occur in countries with a better rule of law and better accounting standards, as in these countries there are less information asymmetries regarding the target's value and hence a lower need for two-stage acquisitions to resolve this uncertainty.

Panel B reports deal-level characteristics. Targets are relatively smaller than acquirers in two-stage relative to one-stage acquisitions, which may indicate that these are less mature firms for which less information is available. Consistent with the idea that targets in foreign countries and in different industries are harder to value, two-stage acquisitions are more likely to involve foreign targets and targets in different industries. One-stage acquisitions are also more likely to be fully stock financed. As stock financing is often used to reduce information asymmetries between targets and acquirers, two-stage acquisitions can reduce such uncertainty without resorting to stock financing. The results also confirm that, in contrast to toeholds, minority stakes provide acquirers with board seats: two-stage acquirers are 22% more likely to be present on the target's board before making a majority stake offer. Note that this dummy variable is coded to equal zero when information about the target's board composition is unavailable in BoardEx.

[78] . Given that capital structures and financial constraints are industry-dependent (Rajan and Zingales, 1998), the leverage ratio and HP index are adjusted for the 2-digit SIC industry mean. Consistent with the use of two-stage acquisitions by financially constrained acquirers, Ouimet (2013) reports that acquirers in minority stake acquisitions are more financially constrained than acquirers in majority stake acquisitions.

This retains the number of observations, but biases against finding a significant difference in board presence between one- and two-stage acquirers: when excluding these observations, I find that two-stage acquirers are almost eight times more likely to be present on the target's board (62% in two-stage deals, relative to 9% in one-stage deals).[79] In addition, the last two rows indicate that two-stage acquirers on average own 26% of the target's shares prior to the majority takeover bid and that acquirers wait on average 1.4 years before expanding a minority stake to a majority stake.

The pricing implications are reported in Panel C. Both the majority stake premium and the weighted premium are significantly lower in two-stage acquisitions relative to one-stage acquisitions. This suggests a competition-deterring effect of acquiring a target in two stages, but this will be investigated in more detail in subsequent tests. The control premium (if any) in minority stake acquisitions is generally much smaller than that in majority acquisitions. It is therefore not surprising that the premium difference between one-stage and two-stage acquisitions becomes larger when considering the weighted premium. Target CARs are significantly lower for two-stage acquisitions relative to one-stage acquisitions, which may reflect the lower premiums in two-stage deals as they are not affected by pre-emptive bidding. Acquirer shareholders do not react significantly differently, which may seem surprising as two-stage deals should offer considerable benefits to acquirers in terms of resolving valuation uncertainty and deterring competition. However, acquirer CARs are traditionally small and close to zero (Moeller et al., 2004), making it harder to find significant effects. Consequently, the combined CARs mainly reflect the reactions of target shareholders, resulting in significantly lower returns for two-stage deals relative to one-stage deals.

[79] I confirm these results using a treatment effects model as in Section 3.1, but which has the acquirer's presence on the target's board as the dependent variable in the second stage estimation (results not reported). Two-stage acquisitions are strongly positively related to an acquirer having target board seats before the majority stake bid.

Table 1: Summary Statistics

This table shows summary statistics for firm- (Panel A) and deal-level (Panel B) characteristics for the global sample of one- and two-stage acquisitions for which at least the majority stake premium is available. Acquirer and target leverage and HP indices are 2-digit SIC industry-adjusted. Panel C shows the premiums and acquirer and target CARs, along with the value-weighted combined CARs. Continuous variables are winsorized at the 1st and 99th percentiles, and the last column shows the difference in means based on a two-sample t-test. Variable definitions are given in Appendix I.

	One-Stage Acquisitions				Two-Stage Acquisitions				*Difference in*
	N	Mean	Median	St. Dev.	N	Mean	Median	St. Dev.	*Means*
Panel A: Firm-Level Characteristics									
Target Leverage (Ind. Adj.)	7,091	-0.059	-0.064	0.169	461	-0.004	-0.036	0.182	*-0.054****
Acquirer Leverage (Ind. Adj.)	7,091	-0.051	-0.045	0.143	461	-0.010	-0.034	0.160	*-0.041****
Target HP Index (Ind. Adj.)	7,091	-0.322	-0.323	0.736	461	-0.459	-0.422	0.699	*0.138****
Acquirer HP Index (Ind. Adj.)	7,091	-0.318	-0.273	0.373	461	-0.061	-0.041	0.524	*-0.256****
High-Tech Target	7,091	0.401	0	0.490	461	0.271	0	0.445	*0.130****
High-Tech Acquirer	7,091	0.418	0	0.493	461	0.291	0	0.455	*0.127****
Target Industry Volatility	7,091	0.150	0.040	0.163	461	0.069	0.031	0.109	*0.080****
Target MTB	7,091	2.443	1.888	2.747	461	2.307	1.527	3.920	*0.137*
Target ROA	7,091	0.002	0.067	0.262	461	0.034	0.071	0.226	*-0.031***
Acquirer ROA	7,091	0.102	0.109	0.143	461	0.122	0.109	0.098	*-0.019****
Acquirer Market Cap. ($ Mil.)	7,091	329.6	5.197	2,114	461	201.9	2.808	1,295	*127.6***
Target Country Rule of Law	7,091	9.641	10	0.792	461	9.161	9.233	1.239	*0.479****
Target Country Accounting Standards	7,091	71.38	71	4.229	461	69.67	71	6.575	*1.711****
Panel B: Deal-Level Characteristics									
Relative Size	7,091	0.414	0.209	0.956	461	0.344	0.149	0.626	*0.070****
Cross-Border	7,091	0.251	0	0.433	461	0.295	0	0.457	*-0.044***
Hostile Deal	7,091	0.027	0	0.162	461	0.049	0	0.218	*-0.023****
Stock-Financed Deal	7,091	0.509	1	0.500	461	0.282	0	0.450	*0.227****
Tender Offer	7,091	0.256	0	0.437	461	0.284	0	0.452	*-0.028*
Diversifying Deal	7,091	0.364	0	0.481	461	0.449	0	0.498	*-0.085****
M&A Wave in Target Ind.	7,091	0.151	0	0.358	461	0.132	0	0.339	*0.019*
Acquirer on Target Board	7,091	0.015	0	0.122	461	0.236	0	0.425	*-0.221****
% of Shares Owned Before					461	25.52	24.7	12.47	
Nr. of Days between Min and Maj. Acq.					461	500.3	272	634.4	
Panel C: Premiums and CARs									
Majority Acq. Premium	7,091	0.384	0.406	0.349	461	0.273	0.238	0.348	*0.110****
Weighted Premium					256	0.226	0.238	0.383	
Target CARs [-1,+1]	4,370	0.104	0.053	0.197	430	0.041	0.016	0.076	*0.063****
Acquirer CARs [-1,+1]	5,232	0.001	-0.002	0.063	421	0.001	-0.001	0.048	*0.000*
Combined CARs [-1,+1]	3,772	0.042	0.024	0.098	384	0.016	0.011	0.046	*0.027****

3. Two-Stage Acquisitions and Bid Premiums

3.1 Treatment Effects Model

3.1.1 Two-Stage Acquisitions and Deal Premiums

I investigate the premium difference between one-stage and two-stage acquisitions using the treatment effects model described in Section 2.1.[80] Columns (1) and (3) in Table 2 report the results for the first-stage model which estimates the likelihood of a target being acquired in a two-stage deal relative to a one-stage deal, using the acquirer's financial constraints (as measured by an above-median HP index) as an identifying variable. As expected, two-stage acquisitions are more likely when the acquirer is more financially constrained. This is consistent with acquirers preferring to use two-stage deals when they do not have sufficient funds to acquire the target in one transaction.[81] Targets in different industries from those of the acquirer are more likely to be acquired in a two-stage deal, and stock-financed deals are less likely to be done in two steps. Two-stage acquisitions are also more likely when the acquirer is more profitable and when the target's MTB ratio is below the industry median. Consistent with the idea that two-stage acquisitions may be used to fend off rival bidders, M&A waves in the target's industry increase the likelihood of a two-stage deal. [82]

Columns (2) and (4) show the results for the second-stage model using the majority stake premium and the weighted premium as dependent variables, respectively. Both models include the indicator for two-stage acquisitions and the inverse Mills ratio, in addition to firm-, deal-, and country-level control variables and year and industry fixed effects. Two-stage acquirers appear to offer significantly lower premiums relative to one-stage acquirers, which suggests that two-stage acquisitions may play a role in deterring competition, resulting in lower premiums. The premium difference increases from -20%

[80] Appendix C shows the estimates for a regular OLS model, which does not include the inverse Mills ratio. As expected, the coefficient on two-stage acquisitions is slightly larger, but the overall conclusions remain unchanged.

[81] Note that these financial constraints proxies are not industry-adjusted as the specification includes acquirer and target industry fixed effects. I re-estimate the treatment effects model in Appendix D using indicators for whether the acquirer's leverage ratio (Column (1)) or HP index (Column (3)) is in the top quartile of the sample distribution. In Column (5), I include the acquirer's FC index. The FC index ranges from 0 to 3 and adds 1 if the acquirer did not pay a dividend, has a top-quartile leverage ratio, or has a top-quartile HP index. The results from these estimations are similar in size and significance to those based on the HP index in Table 2.

[82] The insignificant coefficient on relative size is likely because, on the one hand, relatively larger targets are harder to fund, making it more likely that acquirers need two stages to acquire majority control in the target. On the other hand, because smaller targets are easier to fund, they also attract a higher number of potential competitors. A higher level of potential competition may then increase the likelihood of using a two-stage acquisition strategy.

to -25% when considering the weighted premium, indicating that acquirers do not pay excessively large premiums at the minority stake acquisition which off-sets the lower premium at the majority stake acquisition. In addition, the results indicate that lower premiums are offered in diversifying deals and in relatively larger deals. Premiums are higher when the target and acquirer are more profitable and when the deal is financed using stock, but acquirer leverage is negatively related to the premium. The coefficient on the inverse Mills ratio is significantly positive, indicating that without correcting for selection bias, the coefficient on *Two-Stage Acquisition* would have been upward-biased. In other words, factors that increase the likelihood of a two-stage deal are associated with higher bid premiums. The OLS results in Appendix C confirm this, as the coefficients on the *Two-Stage Acquisition* indicator more than halve in size to -5% and -8%.

Although the treatment effects model corrects for a potential selection bias, there may still be unobservable factors at the acquirer level that affect the likelihood of engaging in a two-stage acquisition and the premium offered. I therefore also estimate an acquirer firm fixed effects model for a sample of serial acquirers to take into account time-invariant variables at the acquirer level (Column 5).[83] I find that the coefficient for two-stage acquisitions increases in size to -30%, although it becomes less significant.

The results in Column 4 show that two-stage acquirers still pay significantly lower premiums even when taking into account the premium paid for their minority stake, indicating that the premium difference at the majority stake acquisition is not off-set by an excessively high premium at the minority stake acquisition. However, it is not obvious whether targets in two-stage deals should receive higher or lower premiums at the minority stake acquisition relative to those in minority acquisitions that were not followed by a majority stake offer. Column 1 in Appendix F shows that two-stage acquirers pay 7% higher premiums at the minority acquisition relative to acquirers that did not make a subsequent majority acquisition. This suggests that the minority stake premium includes the value of the "option to wait" in two-stage acquisitions, which should be more valuable for more uncertain targets. Indeed, Column 2 in Appendix F shows that minority stake premiums by two-stage acquirers are 12% higher than premiums by other minority stake acquirers if the target is in a volatile industry relative to only 4% higher premiums if the target's industry is less volatile.

[83] Serial acquirers are defined here as firms acquiring more than 5 targets over the sample period.

An alternative explanation for the negative effect of two-stage acquisitions on the merger premium is that disappointing information about the target's value has become available between the minority and the majority stake acquisition, such that the acquirer can purchase majority control in the target at a lower premium. Although such an explanation is hard to disentangle from the competition-reducing effect of two-stage acquisitions, I investigate such negative uncertainty resolution using large changes in the target's return on assets in a robustness test in Table 10. I find that controlling for negative events between the minority and majority acquisition does not erode the negative effect of two-stage acquisitions on the merger premium. In addition, all specifications control for the target's return on assets and leverage ratio in the year before the majority stake acquisition. In unreported tests, I also control for declines in target performance using an indicator for whether the target had a negative EBITDA, which does not affect my conclusions.

Overall, these results show that two-stage acquisitions are associated with lower premiums than one-stage acquisitions, with this effect not being driven by the lack of control premium in the minority stake acquisition, a selection bias effect, or unobservable time-invariant acquirer characteristics. In addition, although two-stage acquirers pay higher premiums at the minority acquisition relative to other minority stake acquirers, this does not off-set the lower premiums at the majority acquisition.

Table 2: Two-Stage Acquisitions and Deal Premiums

This table reports the first-step (Columns 1 and 3) and second-step (Columns 2 and 4) estimation results for a treatment effects model, using the majority stake premium (Column 3) and the weighted premium (Column 4) as dependent variables for a global sample of M&A deals. In the first step, the probability of being targeted in a two-stage acquisition versus a one-stage acquisition is estimated based on a set of deal and firm characteristics, along with an above-median HP index indicator, and acquirer and target industry, target country, and year fixed effects. The inverse Mills ratio from this estimation is included in the second step. The independent variable in the second step is an indicator for two-stage acquisitions. The control variables are the same set of deal and firm characteristics and fixed effects as in the first step, with the addition of target country controls. Column 5 reports results for an acquirer fixed-effects model. Two-step consistent standard errors are reported in brackets. ***, **, and * indicate significance at the 1%, 5%, and 10% significance level, respectively.

Dep. Var.:	(1) P(Two-Stage Acquisition)	(2) Maj. Acq. Premium	(3) P(Two-Stage Acquisition)	(4) Weighted Premium	(5) Weighted Premium
Two-Stage Acquisition		-0.203***		-0.246***	-0.305*
		(0.044)		(0.057)	(0.179)
Diversifying Deal	0.127**	-0.015*	0.171**	-0.025**	0.007
	(0.063)	(0.008)	(0.082)	(0.010)	(0.019)
Cross-Border	-0.082	0.014	0.006	0.017	-0.016
	(0.072)	(0.009)	(0.093)	(0.011)	(0.025)
Stock-Financed Deal	-0.530***	0.018**	-0.433***	0.023**	0.012
	(0.067)	(0.009)	(0.087)	(0.010)	(0.019)
Relative Size	-0.012	-0.004***	-0.040	-0.004***	-0.003
	(0.014)	(0.001)	(0.045)	(0.001)	(0.004)
High-Tech Target	-0.203**	0.012	-0.097	0.017	0.004
	(0.090)	(0.012)	(0.116)	(0.014)	(0.028)
Target ROA	0.029	0.006***	0.051	0.007***	-0.007
	(0.046)	(0.002)	(0.049)	(0.002)	(0.016)
Acquirer ROA	0.851***	0.168***	0.552*	0.196***	-0.076
	(0.250)	(0.021)	(0.312)	(0.024)	(0.119)
Target Leverage	-0.021	0.002	-0.007	0.002	0.003
	(0.015)	(0.002)	(0.016)	(0.002)	(0.003)
Acquirer Leverage	0.207	-0.068***	0.288	-0.064**	
	(0.167)	(0.022)	(0.214)	(0.026)	
M&A Wave in Target Industry	0.657***	-0.004	0.636***	-0.006	-0.010
	(0.083)	(0.012)	(0.107)	(0.014)	(0.026)
Target MTB	0.065***	0.002	0.065***	0.003	-0.001
	(0.009)	(0.002)	(0.012)	(0.002)	(0.013)
Acquirer Market Cap. (ln)	-0.024	0.009***	-0.009	0.007***	
	(0.016)	(0.002)	(0.021)	(0.002)	
Target Industry Volatility > Median	-0.159**	0.051***	-0.110	0.050***	0.001
	(0.079)	(0.010)	(0.101)	(0.012)	(0.019)
Tender Offer	-0.046	0.143***	0.098	0.149***	0.116***
	(0.074)	(0.010)	(0.095)	(0.012)	(0.018)
Hostile Deal	0.241	0.025	-0.219	0.026	-0.026
	(0.156)	(0.023)	(0.270)	(0.028)	(0.041)
High-Tech Acquirer	0.030	0.008	-0.003	0.011	
	(0.092)	(0.012)	(0.117)	(0.015)	
Target Country Rule of Law		0.020***		0.026***	
		(0.005)		(0.006)	
Target Country Accounting Standards > Median		0.018*		0.016	
		(0.011)		(0.013)	
Acquirer HP Index > Median	0.659***		0.487***		
	(0.082)		(0.107)		
Inverse Mills Ratio		0.075***		0.086***	0.114
		(0.024)		(0.030)	(0.081)
Observations	7,494	7,494	6,239	6,239	5,164
(Pseudo) R-squared	0.264		0.301		0.132
Year FE	Yes	Yes	Yes	Yes	Yes
Acquirer & Target Industry FE	Yes	Yes	Yes	Yes	No
Target Country FE	Yes	No	Yes	No	Yes
Acquirer Firm FE	No	No	No	No	Yes

3.1.2 Target Value Uncertainty

Next, I investigate several situations in which the competition-deterring effect of acquiring a minority stake on the one hand and the uncertainty-resolving effect on the other hand are more likely to dominate. The control variables are not reported in the next tables to save space, but all estimations include the set of control variables and fixed effects reported in Table 2, along with the inverse Mills ratio to correct for selection bias.

Acquiring a minority stake in a target firm before making a majority takeover bid increases the information available to the acquirer about the target's operations and management, and hence about its value. Minority stake acquirers become blockholders in the target firm and may thus be present on the target's board, or they may simply have better access to informal meetings with the target's employees, management, and board directors (Barclay and Holderness, 1991). This informational advantage should then be reflected in the takeover premium. On average, targets with more uncertain valuations receive lower offers as acquirers want to avoid overpaying for "bad" targets (Coff, 1999; Povel and Singh, 2006).[84] Therefore, to the extent that two-stage acquirers can better assess the value of the target's operational processes and are hence faced with less uncertainty, they should decrease their offers less relative to one-stage acquirers.

Following the literature, I proxy target value uncertainty with the target's industry stock volatility in the year preceding the takeover bid (Bhagwat, Dam, and Harford, 2016). Column (1) in Table 3 reports the results from interacting the two-stage acquisition indicator with an indicator for above-median target industry stock volatility. I find that although two-stage acquisitions are related to lower premiums when target industry stock volatility is low – reflecting the competition-deterring effect of minority stake acquisitions as the uncertainty-reducing effect is less likely to play a role for these targets – the effect is weakened when target value uncertainty is high. Specifically, premiums are 38% lower in two-stage deals relative to one-stage deals when uncertainty is low, but above-median target industry stock volatility offsets this effect by 11%. Gomes-Casseres, Hagedoorn, and Jaffe (2006) find that knowledge flows between allied firms are greatest when firms are geographically close to each other as it is more costly

[84] Alternatively, targets with more uncertain valuations may end up receiving higher offers if acquirers are likely to overvalue the target and hence overpay. Two-stage acquisitions then result in lower premiums because they are less subject to overpayment. There is however little theoretical or empirical evidence indicating that more uncertainty is related to overpayment and higher premiums. Moreover, Columns (3) and (4) of Table 3 indicate that the lower premiums in two-stage acquisitions are more likely due to the competition-deterring effect.

to transfer advanced or proprietary knowledge when firms are geographically distant. Column (2) therefore investigates whether the uncertainty-reducing effect of two-stage deals is stronger when acquirers and targets are geographically closer, proxied by their respective countries sharing a common border. The positive interaction term indicates that two-stage acquirers pay higher premiums when their country shares a border with the target's country relative to when this is not the case.

Table 3: Two-Stage Acquisitions and Deal Premiums: Resolving Uncertainty vs Deterring Competition

This table reports second-step estimation results for a treatment effects model for a global sample of deals. The dependent variable is the weighted bid premium, weighted by the fraction of shares acquired in the minority and majority stake acquisition. The main independent variable is an indicator for two-stage acquisitions, interacted with an indicator for high target industry stock volatility (Column 1), an indicator for the acquirer and target country sharing a common border (Column 2), the log of the number of potential bidders (Column 3), and an indicator for merger waves in the target's industry (Column 4). The control variables include the inverse Mills ratio, deal (indicators for diversifying, cross-border, stock-financed, tender offer, or hostile deals) and firm (measures of a the firms' relative size, indicators for high-tech targets and acquirers, target and acquirer ROA and leverage, acquirer market cap., the target's MTB ratio, above-median target industry volatility, target country rule of law and accounting standards and – except for Column 3 - indicators for merger waves in the target's industry) characteristics, along with acquirer and target industry, and year fixed effects. Two-step consistent standard errors are reported in brackets. ***, **, and * indicate significance at the 1%, 5%, and 10% significance level, respectively.

Dep. Var.: Weighted Premium	(1)	(2)	(3)	(4)
Two-Stage Acquisition	-0.383***	-0.351***	-0.217***	-0.248***
	(0.081)	(0.074)	(0.058)	(0.057)
Target Ind. Volatility > Median	0.011			
	(0.010)			
Two-Stage Acquisition x [Target Ind. Volatility > Median]	0.114**			
	(0.053)			
Target and Acquirer Country Share Border		0.003		
		(0.022)		
Two-Stage Acquisition x [Target and Acquirer Country Share Border]		0.095*		
		(0.054)		
Ln(Potential Bidders) > Median			0.022*	
			(0.013)	
Two-Stage Acquisition x [Ln(Potential Bidders) > Median]			-0.140**	
			(0.055)	
M&A Wave in Target Industry				0.020
				(0.027)
Two-Stage Acquisition x [M&A Wave in Target Industry]				-0.211*
				(0.127)
Inverse Mills Ratio	0.080**	0.108***	0.099**	0.091**
	(0.031)	(0.034)	(0.031)	(0.030)
Observations	6,239	6,239	6,239	6,239
(Pseudo) R-squared	0.313	0.313	0.313	0.313
Control Variables	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Acquirer Industry FE	Yes	Yes	Yes	Yes
Target Industry FE	Yes	Yes	Yes	Yes

3.1.3 Potential Bidder Competition

Based on theoretical (Fishman, 1989) and empirical (Aktas, de Bodt, and Roll, 2010) evidence, majority stake acquirers should increase their offers more if there is more potential competition in order to deter rival bidders from entering the contest.[85] An alternative deterrent strategy however is to acquire a minority stake, as this increases the price rival bidders have to offer to get the minority stake acquirer to sell its stake, keeping them from making an offer in the first place (Betton et al., 2009). Consequently, two-stage acquirers should not have to raise their bids when there is more potential competition, resulting in lower premiums relative to one-stage acquirers. Following Aktas et al. (2010), I proxy potential competition with a dummy taking the value of one when there is an M&A wave in the target's industry as competition for targets is stronger during merger waves (Column (3)). As a second proxy for potential competition, I follow Povel and Sertsios (2014) by assuming that the potential number of interested bidders in a target is proportional to the number of public companies in the target's industry and related industries (Column (4)). I calculate the probability that a firm in industry *i* is acquired by a firm in industry *j* and I multiply this probability for each industry *i* with the probability that an acquirer belongs to industry *j* times the number of public companies in industry *j* one year before the takeover offer is made. The potential number of bidders at time *t* in industry *i* is then the sum of these products across industries.

The results in Columns (3) and (4) indicate that, even when potential competition is low, two-stage acquirers offer lower premiums relative to one-stage acquirers. This likely reflects the lack of a control premium in the minority stake acquisition, which lowers the weighted deal premium in the majority stake acquisition. When potential competition is high however, the premium difference becomes even larger. In Column (3), an above-median level of potential bidders decreases premiums by 14% for two-stage acquirers, whereas it increases premiums by 2% for one-stage acquirers. This is consistent with increased potential competition inducing pre-emptive bidding behavior in one-stage acquirers. For two-stage acquirers however, the minority stake already acts as a deterring mechanism, mitigating the need to raise offer premiums. These results are confirmed by using M&A waves in the target's industry as a proxy for potential

[85] It is important to look at potential competition rather than the observed number of bidders as the number of bidders reported by sources such as SDC only reflects official bids, not taking into account interested firms that did not submit official bids (Boone and Mulherin, 2008). Moreover, the potential number of bidders is less likely to be endogenous to the decision to take a minority stake.

competition, although the pre-emptive bidding behavior by one-stage acquirers is found to be weaker.

3.2 Exogenous Variation in Target Value Uncertainty and M&A Competition

3.2.1 UTSA Enactment across US States

Although the treatment effects model accounts for a potential selection bias in estimating the premium difference between two-stage and one-stage acquirers, there may still be omitted variables that affect the likelihood of being acquired in a two-stage deal and the offered premium. I therefore consider two arguably exogenous sources of variation in target value uncertainty and potential competition.

First, I exploit the staggered introduction of the Uniform Trade Secrets Acts (UTSA) across US target states. The UTSA statutes considerably increased trade secret protection in the states that enacted them, providing better protection against imitation by rivals, but also reducing information available to potential bidders about firms' operational processes, customer lists, and other aspects of their intellectual capital. I therefore expect that the enactment of UTSA statutes decreased the premiums offered by one-stage acquirers. Two-stage acquirers may however have an increased advantage as they are present on the board's meetings or have informal contacts with the target's employees, customers, and suppliers. Two-stage acquirers should thus not reduce their bid premiums following an increase in uncertainty. If anything, they may value stronger trade secret protection as it increases the target's competitive advantage, and consequently offer higher premiums to reflect this.[86]

[86] An alternative explanation could be that an increase in trade secret protection increases the value of those firms that are also more likely to be acquired in a two-stage acquisition, such that the higher premiums in two-stage acquisitions simply reflect the increase in value. This story does not however explain why targets in one-stage acquisitions (that should thus not be affected by an increase in trade secret protection) receive lower premiums following UTSA enactment.

Table 4: Two-Stage Acquisitions and Resolving Uncertainty: UTSA Enactment

This table reports estimations for a difference-in-difference model based on the enactment of UTSA across US target states. The dependent variables are the majority stake premium or the weighted bid premium in Panel A, and the acquirer, target, or combined firm (market value-weighted) three-day CARs in Panel B. Columns 1 and 2 in Panel A consider a sample of US targets and international acquirers, Columns 3 and 4 consider US targets and US acquirers. The main independent variable is an indicator for two-stage acquisitions, interacted with a post-UTSA enactment indicator and a treated-state indicator. Treated states are target states that enacted UTSA before or during the sample period. The control variables include deal (indicators for diversifying, cross-border/cross-state, stock-financed, tender offer, or hostile deals) and firm (measures of a the firms' relative size, indicators for high-tech targets and acquirers, target and acquirer ROA and leverage, acquirer market cap., the target's MTB ratio, above-median target industry volatility, and indicators for merger waves in the target's industry) characteristics, along with acquirer and target industry, target state, and year fixed effects. Standard errors are clustered at the target state level. ***, **, and * indicate significance at the 1%, 5%, and 10% significance level, respectively.

Panel A: Premiums

Dep. Var.:	(1) Maj. Acq. Premium	(2) Weighted Premium	(3) Maj. Acq. Premium	(4) Weighted Premium
Sample	International Acquirers		US Acquirers	
Two-Stage Acquisition	-0.193***	-0.210**	-0.232***	-0.260***
	(0.022)	(0.082)	(0.016)	(0.088)
Post-UTSA x Treated Target State	-0.021**	-0.023*	-0.021**	-0.016
	(0.010)	(0.012)	(0.010)	(0.015)
Two-Stage Acquisition x Post-UTSA x Treated Target State	0.087**	0.109***	0.120***	0.090*
	(0.034)	(0.040)	(0.034)	(0.052)
Two-Stage Acquisition x Treated Target State	0.044	0.044	0.048	0.088
	(0.032)	(0.099)	(0.032)	(0.103)
Constant	0.371***	0.267***	0.412***	0.374***
	(0.090)	(0.075)	(0.074)	(0.064)
Observations	3,839	3,495	3,136	2,878
R-squared	0.186	0.185	0.168	0.179
Control Variables	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Acquirer & Target Industry FE	Yes	Yes	Yes	Yes
Target State FE	Yes	Yes	Yes	Yes

Panel B: Announcement CARs [-1,+1]

Dep. Var.:	(1) Acquirer CARs	(2) Target CARs	(3) Combined CARs
Sample	International Acquirers		
Two-Stage Acquisition	-0.023**	-0.120***	-0.055***
	(0.010)	(0.014)	(0.012)
Post-UTSA x Treated Target State	0.001	-0.001	-0.001
	(0.005)	(0.008)	(0.004)
Two-Stage Acquisition x Post-UTSA x Treated Target State	0.042**	0.067***	0.040**
	(0.017)	(0.025)	(0.015)
Two-Stage Acquisition x Treated Target State	0.003	0.012	0.014
	(0.009)	(0.027)	(0.017)
Constant	-0.013	0.130**	0.076***
	(0.011)	(0.057)	(0.023)
Observations	3,289	3,427	3,081
R-squared	0.090	0.090	0.082
Control Variables	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Acquirer & Target Industry FE	Yes	Yes	Yes
Target State FE	Yes	Yes	Yes

The results in Panel A of Table 4 confirm the uncertainty-reducing effect of two-stage acquisitions. For one-stage acquirers, the majority stake premium (Column (1)) and the weighted premium (Column (2)) are significantly lower post-UTSA enactment, consistent with an increase in trade secret protection increasing uncertainty and hence reducing bid premiums. One-stage acquirers' offers decrease by 2.3% (from an average premium of 42.4% to 40.1%), equivalent to a dollar decrease of on average $28.7 million (2.3% of an average one-stage target's pre-UTSA market capitalization of $1,251 million). Two-stage acquirers however do not reduce their offers after the enactment of the UTSA statutes in the target's state, with premiums increasing by 10.9% (from an average premium of 21.4% to 32.3%) after the increase in trade secret protection. Given average pre-run up, pre-UTSA, two-stage target market capitalizations of $128 million, this is equivalent to a dollar increase of $14.1 million (10.9% of the average pre-run up, pre-UTSA target market capitalization).

Two-stage acquirers are thus not affected by the increase in uncertainty and may even value the stronger protection of the target's competitive advantage. Importantly, two-stage deals involving targets in treated states (states that enacted the statutes) do not appear to be valued differently from those in untreated states.[87] This is in line with Png (2017), who shows that the reforms were exogenous to economic and political conditions at the state level and that they were not the result of corporate lobbying. Columns (3) and (4) repeat the analysis for a sample of US acquirers and US targets. Compared to the international acquirers in Columns (1) and (2), the effect of the UTSA enactment is slightly stronger for the majority stake premium despite the smaller sample. As US acquirers may be better informed about the details of the UTSA statutes and hence adjust their premiums accordingly, this strengthens the idea that my results are driven by the increase in trade secret protection.

If two-stage acquirers have an increased advantage after an increase in information asymmetries, I should also see an increase in the likelihood that an acquirer uses a two-stage acquisition strategy to obtain control in a target. The results in Table 5 indeed show that the likelihood of acquirers using a two-stage acquisition strategy increases by 2% following the enactment of UTSA. Moreover, Columns 3 and 4 show that these results are strongest in deals involving high-tech targets, which are more likely to

[87] Note that the target state fixed effects absorb the main effect for the Treated Target State indicator.

have trade secrets and are therefore more affected by the UTSA enactment. This again strengthens the idea that the UTSA enactment increases information asymmetries, making a two-stage acquisition strategy more beneficial.

Table 5: Likelihood of Two-Stage Acquisitions Following UTSA Enactment

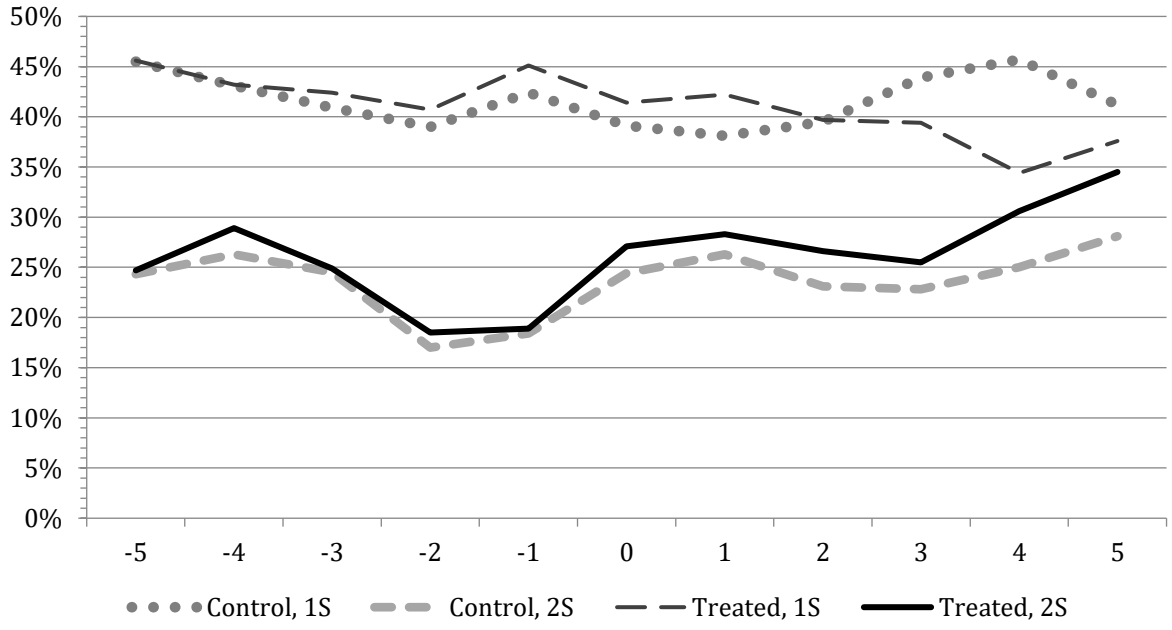
This table reports marginal effects for probit estimations of the likelihood of an acquirer using a two-stage deal following the enactment of the UTSA across US states. The sample consists of one- and two-stage deals involving US targets (Column 1), with Column 2 restricting the sample to those with premium information. Column 3 reports margins at High-Tech Target=0, Column 4 reports margins at High-Tech Target=1. The main independent variable is a post-UTSA enactment indicator. The control variables include deal and firm characteristics, along with acquirer and target industry, target state, and year fixed effects. Time-variant variables are measured the year before the minority acquisition for two-stage deals and the year before the majority acquisition for one-stage deals. The post-UTSA enactment indicator is measured the year of the minority or majority acquisition. Standard errors are clustered at the target state level. ***, **, and * indicate significance at the 1%, 5%, and 10% significance level, respectively.

Dep. Var.:P(Two-Stage Acquisition)	(1) Full Sample	(2) Premium Info	(3) Low-Tech Targets	(4) High-Tech Targets
Post-UTSA x Treated Target State	0.009*	0.020*	0.004	0.011***
	(0.005)	(0.006)	(0.005)	(0.003)
Acquirer Market Cap. (ln)	-0.002***	-0.002***	-0.002***	-0.002***
	(0.0006)	(0.0006)	(0.0004)	(0.0004)
Tender Offer	0.010***	0.006	0.011***	0.009***
	(0.003)	(0.006)	(0.004)	(0.003)
Hostile	-0.006	-0.014	0.006	0.005
	(0.010)	(0.017)	(0.012)	(0.009)
Target Industry Volatility > Median	0.011***	0.005	0.013***	0.010***
	(0.002)	(0.007)	(0.002)	(0.002)
Diversifying Deal	0.002	0.0007	0.002	0.002
	(0.002)	(0.003)	(0.002)	(0.001)
Cross-Border	0.007***	0.012**	0.007***	0.006***
	(0.002)	(0.005)	(0.002)	(0.002)
Stock-Financed Deal	-0.008	-0.024***	-0.009	-0.007*
	(0.005)	(0.007)	(0.006)	(0.004)
Relative Size	-0.001	-0.0008	0.013***	-0.0004
	(0.001)	(0.001)	(0.002)	(0.0007)
High-Tech Target	-0.001	0.0003		
	(0.003)	(0.006)		
Target ROA	0.001	-0.0002	-0.0004**	-0.0003***
	(0.001)	(0.0009)	(0.0002)	(0.0001)
Acquirer ROA	0.018***	0.032***	0.021***	0.016***
	(0.005)	(0.011)	(0.006)	(0.005)
Target Leverage	-0.0003	0.0001	-0.0001	-0.00004
	(0.0002)	(0.0001)	(0.0002)	(0.0002)
Acquirer Leverage	0.005*	0.025***	0.005	0.004*
	(0.003)	(0.004)	(0.003)	(0.002)
Acquirer Above-Median HP Index	0.016***	0.037***	0.018***	0.014***
	(0.005)	(0.008)	(0.006)	(0.005)
M&A Wave in Target Industry	0.024***	0.051***	0.027***	0.022***
	(0.007)	(0.005)	(0.008)	(0.006)
Target MTB	0.001***	0.003***	0.002***	0.001***
	(0.0003)	(0.0004)	(0.0005)	(0.0003)
High-Tech Acquirer	-0.005	-0.003	-0.002	-0.001
	(0.010)	(0.007)	(0.004)	(0.003)
Observations	4,803	2,032	2,067	2,727
Year FE	Yes	Yes	Yes	Yes
Acquirer and Target Industry FE	Yes	Yes	Yes	Yes
Target State FE	Yes	Yes	Yes	Yes

I test the parallel trends assumption graphically in Figure 2. The plot shows that, although acquirers in treated and untreated states follow similar patterns up to year 0 (the year of the enactment), one-stage acquirers in treated states reduce their premiums relative to one-stage acquirers in untreated states after the UTSA enactment, consistent with an increase in information asymmetries following the increase in trade secrets protection. The plot also shows that two-stage acquirers in treated states increase their premiums more after the UTSA enactment than those in untreated states. This is consistent with the results in Table 4, which indicate that two-stage acquirers increase their premiums after the increase in trade secrets protection, suggesting that they may value the protection of the target's trade secrets. In unreported tests (results are available on request), I also investigate the parallel trends assumption by performing a placebo test using year t-3 as the pseudo-event year. In all specifications, the coefficients for the treated state indicator and the post-treatment indicator are statistically insignificant (with the coefficient for two-stage deals remaining negative and strongly significant), indicating that there are no observable divergent trends in the premiums paid for treated and control firms before the UTSA enactment.

Figure 2: UTSA Enactment, Parallel Trends

This figure shows the average premiums for one- and two-stage deals involving US targets for five years before to five years after the enactment of the UTSA in the target's state. Year 0 is the year of the UTSA enactment. The dashed line plots premiums for one-stage deals in treated states, the dotted line plots premiums for one-stage deals in untreated states. The solid line plots premiums for two-stage deals in treated states, the square dotted line plots premiums for two-stage deals in untreated states.



Note that the sample in Tables 4, 5, 6 and 7 only consists of US targets (and/or US acquirers), which could cause concerns regarding the generalizability of my conclusions. Although I do not have information on increases in trade secret protection in other contexts, it is reasonable to believe that any regulation change that shields trade secrets from expropriation by competitors increases the information asymmetries between the target and outside parties. Moreover, Table 10 shows that my main results on the effect of two-stage deals on the merger premium remain when excluding the US.

Panel B considers the acquirer, target, and combined (value-weighted) firm CARs. If two-stage acquisitions indeed enable acquirers to better assess the target's competitive advantage following an increase in uncertainty, this should be reflected by the shareholder's reactions. On the one hand, a premium that more accurately reflects the target's value is beneficial to acquirer shareholders as they are less likely to overpay, and it is beneficial to target shareholders as it increases the likelihood of the offer being successful. On the other hand, a two-stage acquisition may not be beneficial to acquirer shareholders if the value increase from reducing information asymmetries is completely captured by the target shareholders. The results in Panel B show that both acquirer and target shareholders react significantly more positive to deals announced by two-stage acquirers following an increase in trade secret protection. The increase in acquirer shareholder returns by 4.2% indicates that, despite the higher premium, there is still value left on the table for acquirer shareholders, who perceive the bid as being more accurate and less subject to overpayment. Unsurprisingly, target shareholders respond positively to receiving a higher premium, which is also reflected in the 6.7% higher combined (market value-weighted) firm returns. Taken together, these results suggest that a two-stage acquisition strategy reduces information asymmetries by enabling acquirers to better assess the target's value-creating processes. This mitigates the adverse selection problem, resulting in bid premiums that are less subject to information asymmetries, and higher acquirer, target, and combined firm returns.

3.2.2 Reductions in Import Tariff Rates

Second, I use large import tariff reductions across US industries as a source of exogenous variation in potential bidder competition.[88] The literature on trade liberalization shows that reducing barriers to entry for foreign rivals substantially increases both domestic (Breinlich, 2008) and cross-border (Neary, 2007) M&A activity. More intense product market competition in a particular industry triggers a re-allocation of assets across firms and industries, making certain targets in that industry cheaper and increasing domestic M&A activity. Indeed, I find that M&A activity increases by 11% in the year after a reduction in import tariff rates. Consequently, deals involving targets in industries subject to large tariff cuts face an increase in the number of potential bidders. The results in Table 6 confirm this, showing that both the number of bidders in a particular deal and the fraction of deals with multiple bidders increase in the year after the import tariff reduction (Columns 2 and 3). Given that the observed number of bids is a lower boundary of the number of potential bidders, the increase in potential bidder competition is considerably larger at 4.8% (Column 1). As before, two-stage acquirers should be less affected by an increase in the (potential) number of rival bidders as their minority stake deters competing offers, and Column 4 confirms that the use of two-stage deals indeed increases by 0.8% in the year after the import tariff reduction.

[88] As a particular industry may be subject to large import tariff reductions more than once, I use an indicator for whether a reduction occurred in the year preceding the takeover bid. This should capture a large fraction of the total effect, as most M&A activity should occur immediately following the reduction in entry barriers.

Table 6: Competition and Two-Stage Deals Following Import Tariff Reduction

This table reports OLS regression results (Columns 1 and 2) or marginal effects (Columns 3 and 4) of the level of potential bidder competition – measured as the ln of the number of potential bidders - (Column 2), the number of observed bidders in a deal (Column 2), the likelihood of multiple bidders (Column 3), and the likelihood of a two-stage deal (Column 4). The sample consists of one- and two-stage deals involving US targets and US acquirers. The main independent variable is an indicator for the year after an import tariff rate reduction in the target's industry. The control variables include deal and characteristics, along with acquirer and target industry, target state, and year fixed effects. Time-variant variables are measured the year before the minority acquisition for two-stage deals and the year before the majority acquisition for one-stage deals. Robust standard errors are reported in brackets, and standard errors are clustered at the target state level. ***, **, and * indicate significance at the 1%, 5%, and 10% significance level, respectively.

Dep. Var.:	(1) Potential Bidder Competition	(2) Nr. Of Bidders	(3) P(Multiple Bidders)	(4) P(Two-Stage Acquisition)
Reduction ITR_{t-1} x Treated Target Industry	0.048*	0.014*	0.010**	0.008*
	(0.026)	(0.008)	(0.005)	(0.005)
Potential Foreign Bidder Competition (ln)	0.075***	0.010***	0.006***	0.0006
	(0.012)	(0.004)	(0.002)	(0.002)
Acquirer Market Cap. (ln)	0.012***	0.001	0.0006	-0.003***
	(0.003)	(0.001)	(0.0008)	(0.0004)
Tender Offer	0.035**	0.055***	0.028***	0.011***
	(0.015)	(0.009)	(0.004)	(0.003)
Hostile	-0.078	0.305***	0.059***	0.005
	(0.095)	(0.058)	(0.016)	(0.010)
Target Industry Volatility > Median	-0.003	0.028***	0.030***	0.013***
	(0.024)	(0.004)	(0.003)	(0.002)
Diversifying Deal	-2.720***	-0.015**	-0.014***	0.003
	(0.031)	(0.006)	(0.005)	(0.002)
Cross-Border	-0.014	-0.014	-0.008**	0.005*
	(0.038)	(0.009)	(0.005)	(0.003)
Stock-Financed Deal	-0.007	0.002	0.00003	-0.006
	(0.016)	(0.004)	(0.003)	(0.005)
Relative Size	0.001	-0.001***	-0.0001**	-0.0006
	(0.001)	(0.001)	(0.00006)	(0.0008)
High-Tech Target	-0.018	-0.009**	-0.008**	0.004
	(0.018)	(0.004)	(0.003)	(0.003)
Target ROA	0.012**	0.001	0.001	-0.0002**
	(0.006)	(0.001)	(0.001)	(0.0001)
Acquirer ROA	-0.106	-0.002	0.002	0.011***
	(0.067)	(0.003)	(0.005)	(0.005)
Target Leverage	0.005	-0.001	-0.0002	-0.0001
	(0.004)	(0.001)	(0.0009)	(0.0001)
Acquirer Leverage	-0.084	0.020	0.017**	0.003
	(0.057)	(0.016)	(0.011)	(0.003)
Acquirer Above-Median HP Index	0.036*	-0.009***	-0.012***	0.013***
	(0.021)	(0.002)	(0.002)	(0.005)
M&A Wave in Target Industry	0.020	-0.006	-0.007*	0.023***
	(0.033)	(0.005)	(0.006)	(0.007)
Target MTB	0.007***	-0.003***	-0.003***	0.001***
	(0.002)	(0.001)	(0.0005)	(0.0004)
High-Tech Acquirer	0.407***	-0.006	-0.004	-0.001
	(0.053)	(0.007)	(0.004)	(0.004)
Constant	1.296**	1.039***		
	(0.561)	(0.024)		
Observations	8,788	8,788	8,302	5,459
Year FE, Acquirer and Target Industry FE	Yes	Yes	Yes	Yes
Target State FE	Yes	Yes	Yes	Yes

The increase in potential bidder competition should translate in higher premiums being offered, as acquirers have stronger incentives to pre-emptively raise their bids.[89] Lower import tariffs may however also make it easier for foreign firms to serve the market via exports, reducing the incentives to establish production capacity via M&As. I therefore control for the level of potential bidder competition by foreign bidders, where potential foreign bidder competition is measured at the industry level as in Table 3: it is based on the fraction of cross-border deals between the acquirer's and target's industries relative to the total number of cross-border deals in the target's industry, multiplied with the number of foreign firms in the acquirer's industry and summed across industries. I then take the log of this number and include it as an additional control variable.

The results of this test are reported in Table 7. Panel A shows that the premium difference between two-stage acquisitions and one-stage acquisitions becomes significantly larger following a large reduction in import tariff rates, both in terms of the majority stake premium (Column (1)) and the weighted premium (Column (2)). Although one-stage acquirers do not appear to increase their offers after the reduction in import tariff rates (with average premiums remaining at 44.8% in treated states), two-stage acquirers decrease their offers by 38.8% (from 30.5% to a negative -8.3% - note that this negative premium may (i) arise from the effect of the minority stake premium on the weighted premium, and (ii) from a negative effect of the import tariff reduction on the target's market value during the year of the reduction). This however does not imply that one-stage acquirers do not strategically raise their offers to deter rival bidders, as these results effect may reflect the offsetting effect of an overall decrease in the value of target firms. The coefficients on the treated industry indicators show that deals involving targets in industries that are affected by tariff reductions do not receive significantly different premiums, although two-stage deals in treated industries in Column (1) receive on average higher premiums. Nevertheless, this positive effect is not sufficient to off-set the negative effect on the premium when tariffs are reduced. In Column (2), this interaction is no longer significant, reducing concerns that my effects may be driven by industry-specific factors that affect the likelihood of being acquired in a two-stage

[89] Alternatively, there is some evidence that tariff reductions in the acquirer's industry also increase M&A activity, as domestic firms respond to increases in foreign competition by making acquisitions (Srinivasan, 2014). I therefore repeat my analysis using import tariff reductions in the acquirer's industry rather than the target's industry (results available on request). My conclusions remain unaffected; an increase in M&A competition is significantly negatively related to bid premiums by two-stage acquirers, indicating that these acquirers are not triggered to raise their bids in order to fend off rival offers.

acquisition. Moreover, these specifications include target and acquirer industry fixed effects and target state fixed effects to account for time-invariant factors at the industry and state level.

Table 7: Two-Stage Deals and Deterring Competition: Reductions in Import Tariffs

This table reports estimation results based on the reductions in import tariff rates across US industries for a sample of US targets and US acquirers. The dependent variables are the majority stake premium or the weighted bid premium in Panel A, and the acquirer, target, or combined firm (market value-weighted) three-day CARs in Panel B. The main independent variable is an indicator for two-stage acquisitions, interacted with a dummy indicating whether a target's (4-digit SIC) industry was subject to a large tariff cut in the preceding year, and a treated-industry indicator. Treated industries are industries that were subject to large tariff cuts during the sample period. The control variables include the log of the number of potential foreign bidders, along with deal and characteristics, and acquirer and target industry, target state, and year fixed effects. Standard errors are clustered at the target state level. ***, **, and * indicate significance at the 1%, 5%, and 10% significance level, respectively.

Panel A: Premiums	(1)	(2)	
Dep. Var.:	Maj. Acq. Premium	Weighted Premium	
Sample	US Targets, US Acquirers		
Two-Stage Acquisition	-0.187***	-0.143***	
	(0.052)	(0.053)	
Reduction ITR_{t-1} x Treated Target Industry	-0.029	-0.028	
	(0.023)	(0.025)	
Two-Stage Acquisition x Reduction ITR_{t-1} x Treated Target Industry	-0.558***	-0.388***	
	(0.121)	(0.144)	
Treated Target Industry	0.017	-0.020	
	(0.019)	(0.018)	
Two-Stage Acquisition x Treated Target Industry	0.240**	0.065	
	(0.101)	(0.144)	
Constant	0.391***	0.340***	
	(0.089)	(0.097)	
Observations	3,187	2,928	
R-squared	0.165	0.162	
Control Variables (Incl. Pot. Foreign Bidder Comp.)	Yes	Yes	
Year FE, Acquirer and Target Industry FE	Yes	Yes	
Target State FE	Yes	Yes	
Panel B: Announcement CARs [-1,+1]	(1)	(2)	(3)
Dep. Var.:	Acquirer CARs	Target CARs	Combined CARs
Sample	US Targets, US Acquirers		
Two-Stage Acquisition	0.016	-0.119***	-0.039**
	(0.014)	(0.024)	(0.016)
Post-Reduction ITR_{t-1} x Treated Target Industry	-0.002	-0.010	-0.007
	(0.005)	(0.017)	(0.009)
Two-Stage Acquisition x Post-Reduction ITR_{t-1} x Treated Target Industry	0.084***	0.153***	0.121***
	(0.020)	(0.058)	(0.029)
Treated Target Industry	-0.001	0.018	0.008
	(0.004)	(0.013)	(0.006)
Two-Stage Acquisition x Treated Target Industry	-0.036*	0.060	0.004
	(0.019)	(0.040)	(0.025)
Constant	-0.013	0.135	0.082
	(0.034)	(0.093)	(0.054)
Observations	2,841	2,867	2,647
R-squared	0.088	0.093	0.087
Control Variables (Incl. Pot. Foreign Bidder Comp.)	Yes	Yes	Yes
Year FE, Acquirer and Target Industry FE	Yes	Yes	Yes
Target State FE	Yes	Yes	Yes

Panel B reports the announcement returns for acquirer (Column (1)) and target (Column (2)) shareholders, and the value-weighted average of both firms (Column (3)). Both target and acquirer shareholders react positively to two-stage acquisitions following a large tariff reduction, with acquirer returns increasing by 8.4%. This effect is economically large given that acquirer shareholders tend to earn on average zero returns, and it suggests that acquirer shareholders value the lack of pre-emptive bidding behavior by two-stage acquirers which could result in excessive overpayment. Surprisingly, also target shareholders respond positively to two-stage acquirers' lower premiums. Target returns increase by 15.3% after the reduction in import tariff rates, which may reflect that an offer which better reflects the target's value increases the likelihood of the deal being successful. With both the target's and acquirer's shareholders reacting positively to lower premiums offered by two-stage acquirers, the combined firm returns are also positively significant. Taken together, these results suggest that two-stage acquisitions enable acquirers to offer lower premiums when faced with increased potential bidder competition as the presence of a minority stake deters competing offers.

Overall, the results in Tables 4 and 7 suggest that two-stage acquisitions offer considerable benefits to both target and acquirers: they allow acquirers to better assess the target's value, resulting less frictions in the takeover process, and increased returns. In addition, the presence of a minority stake deters pre-emptive bidding, such that two-stage acquirers do not need to raise their premiums when faced with potential competing offers. Again, this results in more efficient takeover bidding and higher shareholder returns.

4. Selling vs Expanding a Minority Stake

So far, my sample of minority stakes is limited to those that were followed by a majority stake. However, not all minority stakes that firms acquire result in a majority takeover offer. In fact, if a minority stake acquisition enables acquirers to resolve information asymmetries and assess potential merger synergies, some of the acquired stakes are likely to be sold (or at least not increased) if the target proves to be an unsuitable merger partner. At each point in time, an acquirer of a minority stake thus has to decide whether to retain, sell, or expand the minority position to a majority stake, and at which price to

do so. Despite the growing number of studies investigating equity blocks and minority acquisitions, this issue has remained largely unexplored.[90]

4.1 Investigating the Decision-Making Process when Expanding a Minority Stake

First, I will investigate the determinants of an acquirer's decision to sell, retain, or expand a minority stake. One such determinant is the level of uncertainty in the target's economic environment. Minority stakes in targets that have larger information asymmetries with respect to the acquirer should take longer to be expanded to a majority stake, or may not even be expanded at all. The longer a stake has been held by the acquirer, the more information has been able to flow between the two firms. I therefore expect that more uncertain targets decrease the likelihood of a minority stake being expanded, and if it is expanded, it should take more time for the acquirer to decide to do so. I proxy for uncertainty using a set of static and time-varying deal-, firm-, and industry-level variables. At the deal level, I consider whether the target and acquirer are located in different countries and whether they are in different industries. Acquirers located in the same country as the target firm have an information advantage over more remote acquirers, as they have easier access to information about the target's value through informal talks with CEOs, employees, customers, or on-site visits (Malloy, 2005; Kang and Kim, 2008). Acquirers that are in similar industries face less uncertainty as they have an easier time valuing the target's operating processes given that they are more familiar with the industry, relative to acquirers that are in different industries. At the firm level, I consider whether the target is in a high-tech industry. High-tech targets' activities' tend to be more uncertain, as their projects require more R&D expenses and have more risky outcomes. At the industry level, I take into account the volatility of the target industry's stock market returns, as targets in more volatile industries have more uncertain operations (Ouimet, 2013).

[90] The majority of the studies investigating equity blocks focus on one particular group of investors, namely institutional investors such as mutual funds or private equity funds. However, institutional investors have very different motives for acquiring an equity stake in a target firm compared to corporate investors.

Table 8: Likelihood and Timing of Expanding a Minority Stake

Panel A reports the hazard ratios for a Cox proportional hazard model (Columns 1-2 and 5-6) or a competing risks model (Columns 3-4) for a sample of global minority stake acquisitions. Column 1 and 3 consider a sample of minority acquisitions that were either expanded or retained during the sample period, Columns 2 and 4 consider deals that were sold or retained. Columns 5 and 6 consider only minority stakes that were either sold or expanded before the end of the sample period, respectively. The independent variables are deal and characteristics, along with acquirer and target industry, target country, and year fixed effects. Standard errors are clustered at the industry-year level. Panel B reports the mean and median premium when selling an equity stake (Columns 1 and 2), or the change in transaction price (per share) at sale relative to acquisition (Columns 3 and 4, adjusted for the acquirer's IRR in Columns 5 and 6). ***, **, and * indicate significance at the 1%, 5%, and 10% significance level, respectively.

Panel A: Likelihood and Timing of Expanding or Selling a Minority Stake

	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.: Hazard Ratio	P(Expand)	P(Sale)	P(Expand)	P(Sale)	P(Expand)	P(Sale)
	Cox Model		*Competing Risks Model*		*Cox Model*	
% of Shares Owned Before	1.007	0.988***	1.006	0.988***	1.005	0.994
	(0.005)	(0.003)	(0.004)	(0.003)	(0.007)	(0.005)
Cross-Border	0.752**	0.866	0.708**	1.009	0.802	0.828
	(0.108)	(0.080)	(0.105)	(0.091)	(0.140)	(0.108)
Relative Size	0.877	1.002	0.902	1.000	0.655**	0.997
	(0.171)	(0.004)	(0.089)	(0.0002)	(0.123)	(0.007)
Diversifying Deal	0.439***	0.959	0.489***	0.952	0.617**	1.025
	(0.078)	(0.083)	(0.085)	(0.089)	(0.117)	(0.120)
Stock-Financed	0.724	1.047	0.681	1.046	2.112	0.705
	(0.550)	(0.336)	(0.495)	(0.342)	(1.775)	(0.306)
High-Tech Target	0.692*	1.370***	0.578***	1.423***	1.087	0.716*
	(0.143)	(0.166)	(0.113)	(0.173)	(0.236)	(0.124)
M&A Wave in Target Industry	0.523	1.644**	0.671	1.785***	0.544	1.402*
	(0.210)	(0.324)	(0.246)	(0.263)	(0.216)	(0.280)
Target Leverage	0.363**	0.619*	0.523	0.641	0.435	0.471**
	(0.156)	(0.159)	(0.240)	(0.178)	(0.235)	(0.158)
Acquirer Leverage	1.047	2.643***	0.833	2.493***	0.417	1.967
	(0.592)	(0.819)	(0.383)	(0.734)	(0.300)	(0.828)
Target ROA	0.751	0.373***	0.702	0.383***	0.203**	0.220***
	(0.449)	(0.102)	(0.391)	(0.103)	(0.127)	(0.066)
Acquirer ROA	2.552	1.541	2.954	1.455	2.173	1.320
	(2.055)	(0.544)	(2.514)	(0.552)	(1.981)	(0.700)
Target Industry Volatility > Median	0.410***	0.882	0.415***	0.847	0.412***	0.825
	(0.125)	(0.112)	(0.100)	(0.096)	(0.138)	(0.143)
Target MTB > Median	0.862	0.928	0.902	0.942	0.847	1.046
	(0.087)	(0.063)	(0.086)	(0.058)	(0.108)	(0.117)
Observations	39,287	40,824	42,192	37,402	3,615	4,760
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Acquirer and Target Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Target Country FE	Yes	Yes	Yes	Yes	Yes	Yes

Panel B: Premium and Price Change when Selling

	Premium Sold		*Price Sold/Price Acquired*		*Price Sold/Price Acquired (Adj.)*	
	Mean	Median	Mean	Median	Mean	Median
All	0.273***	0.261***	0.844***	0.009***	0.364***	-0.319***
(N=1,057)	(0.011)		(0.089)		(0.072)	
Sold to Target	0.114***	0.049***	0.071	0.011	-0.250**	-0.345***
(N=61)	(0.027)		(0.131)		(0.115)	
Sold to Diff. Minority Stake Acq.	0.089***	0.057***	0.065	-0.022	-0.105	-0.367***
(N=151)	(0.021)		(0.083)		(0.096)	
Sold to Diff. Maj. Stake Acq.	0.315***	0.318***	0.987***	0.001	0.455***	-0.270
(N=845)	(0.013)		(0.103)		(0.084)	

It is a well-known fact that M&A activity follows a wave pattern in terms of deal value and numbers, triggered by periods of rapid credit expansion and booming stock markets (Martynova and Renneboog, 2008). Moreover, M&A activity also tends to cluster by industry, as there is significant inter-industry variation in the rate of takeover activity (Mitchell and Mulherin, 1996; Andrade et al., 2001). Deal premiums are often excessively high at the peak of merger waves, which may incentivize minority stake acquirers to sell their stakes at excessively high prices to third-party bidders. I thus expect to find that acquirers are more likely to sell their stakes at the peak of merger waves.

Minority acquisitions are used by acquirers whose external financing costs are too high to finance a majority acquisition (Ouimet, 2013). This implies that a reduction in the acquirer's financial constraints over time should be related to a higher likelihood of expanding the minority stake to a majority stake. On the other hand, an increase in financing constraints may be a signal of financial distress, increasing the likelihood of selling the equity stake, often at a fire sale discount (Dinc, Erel, and Liao, 2017).

In Table 8, I use a Cox proportional hazard model to estimate the likelihood that a minority stake is expanded, retained, or sold at a specific point in time. Relative to regular logit models, the Cox model is able to incorporate both the likelihood of an event happening, and the time at which it happens. In Panel A, Column (1) considers a sample of equity stakes that were either expanded before the end of the sample period or for whom the outcome is unknown (censored), thereby excluding all sold equity stakes. In Column (2), I do the same for sold equity stakes, excluding all expanded equity stakes. The Cox model will thus indicate the likelihood of (i) expanding a minority stake to a majority stake or (ii) selling the stake versus retaining the stake for each year after the minority stake acquisition. It is able to accommodate the fact that the likelihood of a stake being sold or expanded is a function of time passed since the initial acquisition, as well as other static and time-varying variables.

In Column (1), the coefficients for cross-border deals, diversifying deals, and high-tech targets are in line with the hypothesis that more uncertain targets and stakes involving more information asymmetries are less likely to be expanded to majority stakes. An equity stake in a target in a different country is 25% less likely to be expanded relative to domestic deals. This is consistent with the notion that acquirers located near the target firm have an information advantage over more remote acquirers. Similarly, I find that an equity stake in a target in a different industry is 57% less likely to be

expanded relative to deals in the same industry, as acquirers that are in similar industries have an easier time valuing the target's operating processes given that they are more familiar with the industry relative to acquirers that are in different industries. Equity stakes involving targets in highly volatile industries are 56% less likely to be expanded, consistent with targets in these industries being harder to value. High-tech targets are 31% less likely to be expanded, as high-tech targets' activities' tend to be more uncertain and their projects generally require more R&D expenses with risky outcomes. The results also show that a unit increase in leverage (from 0 to 100%) decreases the likelihood of an expansion by 64%.

Column (2) investigates the determinants of a stake being sold. I find that stakes in high-tech targets are 40% more likely to be sold relative to other targets, and that more profitable targets are 64% less likely to be sold. The results also show that target and acquirer leverage are important determinants: an increase in target leverage decreases the likelihood of a sale by 37%, whereas an increase in acquirer leverage increases the likelihood of a sale by 164%. To the extent that leverage acts as a proxy for financial distress, this indicates that distressed acquirers are more likely to sell their equity stakes in target firms, potentially at fire sale prices. These results are consistent with Dinc et al. (2017), who find that distressed acquirers are more likely to sell equity stakes in third-party firms at large discounts.

Columns (3) and (4) repeat the previous analysis using a competing risks model (Lunn and McNeil (1995)). Such a model can estimate the differential effects of the explanatory variables on the likelihood of selling an equity stake, given that expanding the stake is an alternative option. The estimated coefficients in the competing risks model are subhazard rates, which can be interpreted similar to hazard rates in the Cox model. A hazard rate greater than 1 implies that the variable is associated with a higher likelihood of selling (expanding) the equity stake, controlling for the fact that it is also possible that the acquirer expands (sells) its stake, also controlling for all other independent variables. The results remain qualitatively unchanged.

Columns (5) and (6) focus on a subsample of deals that were either expanded (Column (5)) or sold (Column (6)), excluding all deals for which the outcome is unknown at the end of the sample period. This allows me investigate the timing of the decision to expand or sell, rather than the likelihood of expanding versus selling. The results echo those in Columns (1) and (2). More uncertain targets in terms of industry diversification

and industry volatility take longer to be expanded, as well as more profitable and smaller targets. More uncertain high-tech targets also take longer to be sold, as are more levered targets and more profitable targets. As expected, an M&A wave in the target's industry speeds up the decision to sell, as acquirers may sell their stake at inflated prices.

In Appendix G, I investigate whether a two-stage acquirer may be more likely to sell or expand its stake after a negative or positive event (e.g. a successful product launch or a failed R&D project) has resolved some of the uncertainty regarding the target's value. I construct an indicator for whether the target experienced a large decrease (Columns (1), (3), and (5)) or increase (Columns (2), (4), and (6)) in ROA to proxy for such negative or positive uncertainty resolution, as events such as a successful or failed R&D project are reflected in the firm's profitability.[91] A negative event, proxied by a large decrease in ROA, decreases the likelihood of a stake being expanded or sold (Columns (1) and (3)) and also delays the decision to expand (Column (5)). This suggests that acquirers are less likely to expand if disappointing information about the target has become available, but they are also reluctant to sell their minority stake in case of negative uncertainty resolution. A positive event does not affect the likelihood or timing of the decision to expand (Columns (2) and (6)), but it does decrease the likelihood of selling the stake (Column (4)).

4.2 At What Price Does a Minority Stake Acquirer Sell?

The price at which a minority stake acquirer can sell its equity stake is crucial to determining whether a two-stage acquisition is a profitable takeover strategy. Although the previous results have shown that a minority stake can reduce information asymmetries and pre-emptive overbidding, and that it results in on average 25% lower deal premiums when expanding to a majority stake, a two-stage deal may not be profitable if there is a high likelihood of having to sell the equity stake at a substantial loss. Panel B of Table 8 therefore investigates not only the premium at which a minority stake is sold, but also the change in price per share received when selling the stake relative to the price per share paid when buying.

Columns 1 and 2 show that equity stakes are sold at a premium of on average 27%, but that this premium mainly arises from stakes that are sold to third-party majority

[91] A large decrease (increase) is defined as the ROA being lower (higher) than the firm's average ROA over the sample period minus (plus) two times the standard deviation.

acquirers (that fully acquire the target firm). Premiums are much lower at around 10% when considering stakes that are sold back to the target firm or to third-party minority acquirers (the difference is statistically significant at the 1% level). Consistent with the competition channel, this indicates that minority stake acquirers have substantial bargaining power and can obtain higher premiums when a third-party bidder wants to obtain control in the target.

However, an acquirer may still incur substantial losses on its equity stake acquisition if the market value of the target has decreased, despite receiving a high premium. Columns 3 and 4 therefore compare the price at which the acquirer sells its stake, relative to the price at which it bought the stake, adjusted for the acquirer's internal rate of return (IRR) in Columns 5 and 6.[92] The results show that acquirers can sell their equity stakes at an on average 84% higher price relative to the price at which they bought the stake, although this effect reduces to 36% when taking into account the IRR. Moreover, these effects are again mainly driven by stakes that are sold to third-party majority bidders, with the price changes being insignificantly different from zero if the stake is sold to a third-party minority acquirer, and the acquirer losing on average 25% on its acquisition if it sells the stake back to the target (parent) firm. These effects become even more pronounced when investigating the median change in price: the IRR-adjusted return on the equity stake acquisition is -31%, indicating that the return distribution is positively skewed.[93]

Taken together, Panel B shows that minority stake acquirers can sell their equity stakes at 10% to 32% premiums, but that – when adjusting the return for the acquirer's IRR – the return on the equity stake investment is positive only when selling to a third-party majority acquirer, and insignificantly different from zero or negative when selling to a third-party minority acquirer or when selling back to the target firm. In a back-of-the-envelope calculation, it can then be calculated that, given that 80% of equity stakes is sold to a majority acquirer, the IRR-adjusted return on a minority equity stake acquisition

[92] Columns 5 and 6 multiply the transaction value of the minority stake acquisition with a proxy for the acquirer's (IRR) for each year between the acquisition and the sale of the equity stake. This takes into account that the acquirer could have used to money invested in the minority stake for alternative investment purposes.

[93] Appendix H, Panel A investigates the determinants of the minority stake return in an OLS regression, confirming that stakes sold to majority acquirers earn 60% higher returns, but that the number of years passed since the acquisition decreases the return by 6% per year. This is confirmed in Panel B, which shows a declining trend in the price sold/price acquired ratio for each year the acquirer held the equity stake.

is on average still 35%. Combining the 57% (43%) likelihood of a stake being sold (expanded) with the on average 22% lower deal premiums when expanding to a majority stake acquisition and the 35% return when selling, minority stake acquirers earn a return of approximately 29%. The benefits of a two-stage acquisition strategy thus seem to outweigh the costs.

5. Deal Completion, Long-Run Performance and Robustness Tests

5.1 Deal Completion and Long-Run Performance

If two-stage acquisitions increase the efficiency of the takeover process by enhancing cooperation, enabling acquirers to make better informed bids, and reducing the potential for competing offers, then the likelihood of an acquirer withdrawing its bid should be lower for two-stage acquirers relative to one-stage acquirers. Offers that follow information sharing and cooperation between targets and acquirers and that better reflect the target's value should also be less likely to encounter resistance by the target's management or by the target's or the acquirer's shareholders, resulting in a higher likelihood of an offer being completed and reducing the time required to complete the deal. In addition, if these are more efficient takeovers, they should also lower the likelihood of a target being subsequently divested and they should result in better long-run performance.

Column (1) in Table 9 indeed shows that two-stage deals are 13% more likely to be completed than one-stage deals. An acquirer that has held a minority stake for a longer time is more likely to actively cooperate with the target's shareholders or management when expanding its stake. Column (2) investigates the number of days between the announcement of the majority stake acquisition and the effective completion of the deal. Consistent with two-stage acquisitions reducing the need for renegotiation, the results show that two-stage deals decrease the number of days to completion by 63%, equivalent to an on average 44 day decrease in completion time.

Table 9: Two-Stage Acquisitions: Deal Completion and Long-Run Performance

This table reports the second-step estimation results for a treatment effects model based on the full global sample of one- and two-stage deals (not limited to those with premium information). The first step estimates the probability of being targeted in a two-stage acquisition versus a one-stage acquisition based on a set of deal and firm characteristics, along with an indicator for acquirers with an above-median HP index, and acquirer and target industry, target country, and year fixed effects. The inverse Mills ratio from this estimation is included in the second step to adjust for selection bias. The main dependent variables in the second step are a dummy for a deal being completed (Column 1), the log of the number of days between announcement and deal completion (Column 2), a dummy for a target being divested (Column 3), or the combined firm's 3-year post-merger industry-adjusted ROA (Column 4). The control variables are the same set of deal and firm characteristics and fixed effects as in the first step, with the addition of target country controls, and excluding the acquirer above-median HP index indicator. Two-step consistent standard errors are reported in brackets. ***, **, and * indicate significance at the 1%, 5%, and 10% significance level, respectively.

Dep. Var.:	(1) P(Completed)	(2) Time to Completion	(3) P(Divested)	(4) Post-Merger ROA
Two-Stage Acquisition	0.130** (0.061)	-0.629*** (0.168)	-0.025* (0.014)	0.071** (0.032)
Pre-Merger Industry-Adjusted ROA				0.430*** (0.024)
Diversifying Deal	-0.016*** (0.006)	-0.048** (0.020)	0.002* (0.001)	-0.002 (0.010)
Acquirer Market Cap. (ln)	0.001 (0.002)	0.012** (0.005)	-0.001 (0.001)	0.002 (0.002)
Cross-Border	-0.001 (0.007)	0.106*** (0.023)	0.003*** (0.001)	0.028*** (0.010)
Stock-Financed Deal	0.097*** (0.006)	0.512*** (0.021)	-0.002 (0.001)	-0.001 (0.013)
Relative Size	-0.001 (0.001)	-0.002*** (0.001)	-0.001** (0.001)	0.002*** (0.000)
High-Tech Target	-0.022** (0.009)	0.020 (0.035)	0.006*** (0.002)	-0.016 (0.017)
Target ROA	0.001 (0.001)	0.002 (0.003)	-0.001 (0.001)	
Acquirer ROA	0.131*** (0.016)	-0.116** (0.055)	-0.001 (0.003)	
Target Leverage	0.004*** (0.001)	-0.008** (0.003)	0.001 (0.001)	-0.000 (0.001)
Acquirer Leverage	-0.039*** (0.014)	0.126** (0.049)	0.004 (0.003)	-0.047* (0.028)
M&A Wave in Target Industry	0.001 (0.009)	-0.122*** (0.029)	-0.001 (0.002)	-0.038** (0.015)
Target MTB	0.005*** (0.002)	-0.027*** (0.005)	-0.001 (0.001)	0.003 (0.003)
Target Industry Volatility > Median	-0.038*** (0.007)	0.250*** (0.023)	0.003* (0.001)	-0.005 (0.013)
Tender Offer	0.137*** (0.010)	0.162*** (0.029)	-0.001 (0.002)	-0.046** (0.022)
Hostile Deal	-0.452*** (0.028)	0.608*** (0.113)	0.014* (0.008)	0.019 (0.059)
High-Tech Acquirer	0.028*** (0.010)	-0.108*** (0.034)	-0.001 (0.002)	0.032* (0.018)
Target Country Rule of Law	0.021*** (0.002)	0.012 (0.010)	-0.001*** (0.001)	0.008*** (0.003)
Target Country Accounting Standards > Median	-0.054*** (0.007)	-0.150*** (0.025)	-0.001 (0.002)	-0.018 (0.013)
Inverse Mills Ratio	0.042 (0.019)	0.384*** (0.082)	0.023*** (0.006)	-0.044** (0.019)
Observations	18,220	12,039	16,574	1,188
(Pseudo) R-squared	0.202	0.207	0.188	0.405
Year, Acquirer and Target Industry FE	Yes	Yes	Yes	Yes

If two-stage deals decrease the likelihood that an acquirer makes a bad acquisition, the targets in these deals should be less likely to be divested in the years following the majority takeover. For a sample of completed majority acquisitions, Column (3) confirms that target firms are 2.5% less likely to be sold or divested by two-stage acquirers in the years following the majority takeover relative to one-stage acquirers. Finally, Column (4) considers the deal's long-run operating performance by investigating the combined firm's average return on assets over the three years following the merger announcement, adjusted for 2-digit SIC industry performance, and controlling for the acquirer's 3-year pre-merger industry-adjusted ROA. Consistent with two-stage deals improving deal performance, the results show that two-stage acquirers have an 7.1% higher long-run industry-adjusted ROA relative to one-stage acquirers. Overall, the results in Table 9 confirm that two-stage deals increase the efficiency of the takeover process, reflected in a lower likelihood of a bid being withdrawn, a lower time to completion, a lower likelihood of target being divested, and increased long-run operating performance.

5.2 Robustness Tests

Table 10 shows a set of robustness tests. In Column (1), I investigate the size of the stake acquired in the minority acquisition preceding a majority acquisition. As the acquired stake in the minority acquisition becomes smaller, the competition-deterring effect of two-stage acquisitions on the merger premium becomes relatively weaker. I therefore expect that the negative effect of mitigating pre-emptive bidding is mainly driven by larger minority stakes. Column (1) shows that the interaction of the two-stage acquisitions indicator with an indicator for small (<15%) minority stakes is insignificant, confirming that small minority stakes in two-stage acquisitions have less of a competition-deterring effect. Unreported tests based on minority stakes smaller than 10 or 20% show similar results.[94]

In Column (2), I re-estimate the weighted premium, adjusting for the fact that the acquirer could have used the capital invested in the minority stake for other investment projects. I take the value of the money invested in the minority stake, and multiply it with the firm's average annual return rate for each year after the minority acquisition. I then take this adjusted transaction value to calculate the weighted premium for two-stage

[94] Smaller minority stakes are also less likely to earn board seats, hence weakening the uncertainty-reducing effect. However, as for the full sample, the competition-deterring effect appears to be the strongest in the sample of large stakes.

acquirers. I proxy the rate of return on alternative investment projects by taking the acquirer's average ROA in the years before the minority stake acquisition. As precise estimates of expected returns are difficult to obtain, I follow Qian and Zhu (2017) in using an accounting-based measure of how efficiently the firm deploys its capital. Although ROA is a crude proxy for the firm's rate of return, it is unlikely that using a more precise measure of the IRR will completely undo the premium difference between one-stage and two-stage acquirers: using the adjusted weighted premium decreases the premium difference by a mere 4%.

Column (3) investigates the effect of potential anti-trust issues when moving from a minority to a majority stake, as acquirers can use a two-stage acquisition strategy to strategically reduce the competitive intensity with the aim of getting the antitrust authority to approve a merger (Shekhar and Wey, 2017). I therefore exclude deals that are likely to be subject to scrutiny by anti-trust regulators.[95] This again does not affect my conclusions. Column (4) excludes US targets from the sample. The target country sample distribution in Appendix A shows that US targets make up 50% of the total sample and 13% of the two-stage acquisitions sample. My results remain unchanged when excluding these deals, as two-stage acquisitions are still associated with 17% lower premiums.

An alternative explanation for the negative effect of two-stage acquisitions on the merger premium is that disappointing information about the target's value has become available between the minority and the majority stake acquisition, such that the acquirer can purchase majority control in the target at a lower premium. In Columns (5) and (6), I investigate such negative uncertainty resolution by constructing an indicator for whether the target experienced a large decrease (Column (5)) or increase (Column (6)) in ROA between the two transactions.[96] Column (5) shows that controlling for negative events between the minority and majority acquisition does not erode the negative effect of two-stage acquisitions on the merger premium. This confirms that my results are not driven by new negative information enabling the acquirer to purchase the target at a lower

[95] Whether a deal is likely to be affected by anti-trust regulations is defined based on EU antitrust regulations, which states that antitrust policy is likely to be enforced when the merger would increase post-transaction market share for the acquiring firm to more than 35% in any overlapping market. In an unreported test, I control for anti-trust regulations using a dummy indicator, which also does not affect the results.

[96] The indicator for large decreases (increases) is equal to one if the target's ROA was lower (higher) than its average time-series ROA minus (plus) two times the standard deviation at some point between the minority and majority stake acquisition for two-stage acquisitions, and zero otherwise. Replacing the time-series average ROA with the pre-minority acquisition ROA does not affect my conclusions.

premium. This is in line with the results in Table 8 showing that negative events do not increase the likelihood of a stake being expanded. Column (6) however shows that positive events increase the premium at which a two-stage acquirer obtains majority control. Nevertheless, on average two-stage acquirers still pay lower premiums than one-stage acquirers, indicating that the negative effect of two-stage acquisitions on merger premiums is not driven by positive or negative uncertainty resolution between the minority and majority acquisition.

Column (7) controls for the number of years between the minority and majority stake announcement for two-stage acquisitions. Having held a minority stake for a longer time may on the one hand reinforce the competition-deterring effect as it signals commitment to the target to rival bidders. On the other hand, as more information has been able to flow between the target and the acquirer, the uncertainty-reducing effect may also be stronger. Overall, the negative coefficient on the number of years variable indicates that as more time passes between the minority and majority stake announcement, the competition-deterring effect of two-stage acquisitions becomes stronger.

Obtaining a minority equity stake often implies that the acquirer becomes a blockholder in the target firm and therefore obtains a seat on the target's board of directors (in an unreported test, I confirm that the likelihood of an acquirer being present on the target's board is significantly higher in two-stage deals relative to one-stage deals). It could thus be that the uncertainty-reducing and competition-deterring effect of two-stage acquisitions is driven by the acquirer's presence on the target's board, rather than the acquisition of a minority stake (a potential acquirer can have a seat on the target's board without owning equity). I investigate this explanation in Column (8) by interacting the two-stage acquisition indicator with an indicator for whether the acquirer is present on the target's board before the majority acquisition announcement. Information on board composition is obtained from BoardEx and I manually match the names and identifiers of the affiliations of the target's directors with the names and identifiers of the acquirers in my sample. The results confirm that the lower premiums for two-stage acquirers are not driven solely by the acquirer's presence on the board, as the main effect for the two-stage deal indicator remains strongly significant. The interaction term is negative but insignificant, which may reflect the uncertainty-reducing and competition-deterring effects evening out: the combination of owning an equity stake and being

present on the board (and therefore having a say in the target firm) may further deterring rival bids, but it may also further increase information sharing.

Lastly, the lower premiums in two-stage deals could be driven by targets' undervaluation, which enables insiders such as minority blockholders to expand their stakes at a cheaper price. I proxy target undervaluation by constructing a dummy equal to one if the target's MTB ratio is lower than the industry-average MTB ratio (averaged across all target firms in the sample). The results in Column (9) do not support the undervaluation argument: the main effect for two-stage deals is still significantly negative, but the interaction coefficient with the indicator for undervalued targets is insignificant. In contrast, undervalued targets in one-stage deals are associated with 2.5% lower premiums, consistent with undervaluation allowing firms to purchase targets at a cheaper price.

Table 10: Two-Stage Acquisitions and Deal Premiums, Robustness Tests

This table reports robustness tests for various subsamples using a treatment effects model (only the second step is reported), starting from the global sample of M&A deals. Column 1 excludes small minority stakes (<15%) from the sample, Column 2 adjusts the weighted premium for the acquirer's rate of return after the minority acquisition. Column 3 excludes deals that may be subject to anti-trust regulations and Column 4 excludes US target firms. Columns 5 and 6 include an indicator for two-stage acquisition targets that had a large decrease or increase in ROA between the minority and majority acquisition (equal to 0 for one-stage acquisitions), respectively. Column 7 controls for the number of years between the minority and majority acquisition for two-stage acquisitions (with the number of years equal to zero for one-stage acquisitions). Column 8 interacts the two-stage acquisition dummy with an indicator for whether the acquirer is present on the target's board before the majority stake acquisition, and Column 9 includes an interaction with an indicator for below-industry median target MTB. The dependent variable is the weighted bid premium. The main independent variable is an indicator for two-stage acquisitions. The control variables include the inverse Mills ratio from the first-step estimation shown in Column 1 of Table 2, deal and firm characteristics, along with acquirer and target industry, and year fixed effects. Two-step consistent standard errors are reported in brackets. ***, **, and * indicate significance at the 1%, 5%, and 10% significance level, respectively.

Dep. Var.: Weighted Premium	(1) Excl. Small Deals (< 15%)	(2) Adjusted Premium	(3) Excl. Anti-Trust Deals	(4) Excl. US Targets	(5) Negative Event	(6) Positive Event	(7) # of Years Between Stages	(8) Acquirer on Target Board	(9) Target Undervaluation
Two-Stage Acquisition	-0.201***	-0.210***	-0.238***	-0.170**	-0.279***	-0.193***	-0.193***	-0.232***	-0.253***
	(0.063)	(0.053)	(0.060)	(0.070)	(0.063)	(0.062)	(0.062)	(0.057)	(0.076)
Two-Stage Acquisition x Large Decrease in Target ROA					-0.400				
					(0.348)				
Two-Stage Acquisition x Large Increase in Target ROA						0.083*			
						(0.047)			
Two-Stage Acquisition x Number of Years Between Stages							-0.025*		
							(0.014)		
Acquirer on Target's Board								0.052	
								(0.052)	
Two-Stage Acquisition x Acquirer on Target's Board								-0.098	
								(0.102)	
Target MTB < Industry-Median									-0.025**
									(0.012)
Two-Stage Acquisition x [Target MTB < Industry-Median]									0.027
									(0.063)
Inverse Mills Ratio	0.054*	0.078***	0.083***	0.051	0.079***	0.077**	0.079***	0.081***	0.078**
	(0.033)	(0.020)	(0.032)	(0.39)	(0.030)	(0.030)	(0.03)	(0.030)	(0.030)
Observations	6,192	6,225	5,797	2,687	6,239	6,239	6,239	6,239	5,677
Firm, Deal, and Country Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Acquirer and Target Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

6. Conclusion

This paper examines how a two-stage acquisition strategy in which the acquirer purchases a minority stake in the target before committing to a majority stake affects takeover premiums and merger gains. Using a global sample of minority and majority stake acquisitions between 1990 and 2015 in a treatment effects model that controls for the decision to engage in a two-stage acquisition, I find evidence suggesting that two-stage deals reduce information asymmetries when target value uncertainty is high and that they limit pre-emptive bidding when faced with potential bidder competition. Moreover, they are associated with a higher likelihood of deal completion and faster deal completion, a lower likelihood of divestiture, and increased long-run profitability. I confirm these findings by exploiting the increase in trade secret protection across US states and the reduction in import tariffs across US industries as exogenous sources of variation in target value uncertainty and potential bidder competition, respectively. When faced with increased information asymmetries, two-stage acquirers do not decrease their offers, whereas one-stage acquirers do, and this is perceived positively by both acquirer and target shareholders. When faced with an increase in potential bidder competition, two-stage acquirers respond by decreasing their offers rather than pre-emptively increasing them, again resulting in higher acquirer and target announcement returns. Two-stage deals can thus play a role in optimizing the takeover bidding process by reducing information asymmetries and mitigating pre-emptive bidding behavior. They enable firms to make better informed decisions, resulting in deal premiums that are less subject to frictions, higher target and acquirer announcement returns, faster deal completion, and better long-run performance.

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Appendix

Appendix A: Sample Distribution by Target Country

This table shows the sample distribution by target country for the full sample, one-stage acquisitions, and two-stage acquisitions.

Target Country	All Deals		One-Stage Acquisitions		Two-Stage Acquisitions	
	Freq.	Percent	Freq.	Percent	Freq.	Percent
Argentina	4	0.1	3	0	1	0.2
Australia	489	6.5	414	5.8	75	16.3
Austria	15	0.2	13	0.2	2	0.4
Belgium	25	0.3	25	0.4	0	0
Brazil	23	0.3	13	0.2	10	2.2
Canada	950	12.6	913	12.9	37	8
Switzerland	62	0.8	58	0.8	4	0.9
Chile	12	0.2	12	0.2	0	0
Colombia	6	0.1	3	0	3	0.7
Germany	77	1	59	0.8	18	3.9
Denmark	20	0.3	18	0.3	2	0.4
Ecuador	1	0	1	0	0	0
Egypt	4	0.1	4	0.1	0	0
Spain	28	0.4	21	0.3	7	1.5
Finland	21	0.3	17	0.2	4	0.9
France	141	1.9	123	1.7	18	3.9
United Kingdom	646	8.6	609	8.6	37	8
Greece	20	0.3	15	0.2	5	1.1
Hong Kong	33	0.4	30	0.4	3	0.7
Indonesia	6	0.1	4	0.1	2	0.4
India	49	0.6	44	0.6	5	1.1
Ireland	20	0.3	19	0.3	1	0.2
Italy	22	0.3	20	0.3	2	0.4
Jordan	1	0	1	0	0	0
Japan	549	7.3	448	6.3	101	21.9
Mexico	10	0.1	9	0.1	1	0.2
Netherlands	59	0.8	52	0.7	7	1.5
Norway	79	1	68	1	11	2.4
New Zealand	25	0.3	16	0.2	9	2
Pakistan	2	0	2	0	0	0
Peru	5	0.1	4	0.1	1	0.2
Philippines	8	0.1	8	0.1	0	0
Portugal	9	0.1	8	0.1	1	0.2
Singapore	46	0.6	38	0.5	8	1.7
Sweden	90	1.2	81	1.1	9	2
Thailand	22	0.3	16	0.2	6	1.3
Turkey	12	0.2	11	0.2	1	0.2
Taiwan, Republic of China	59	0.8	57	0.8	2	0.4
United States of America	3902	51.7	3834	54.1	68	14.8
Total	**7,552**	**100**	**7,091**	**100**	**461**	**100**

Appendix B: Sample Distribution by Target Industry

This table shows the sample distribution by target 2-digit SIC industry for the full sample, one-stage acquisitions, and two-stage acquisitions.

Target SIC	All Deals		One-Stage Acquisitions		Two-Stage Acquisitions	
	Freq	Perc.	Freq	Perc.	Freq	Perc.
1Agricultural Production - Crops	7	0.1	6	0.1	1	0.2
2Agricultural Production - Livestock and Animal Specialties	7	0.1	5	0.1	2	0.4
7Agricultural Services	8	0.1	7	0.1	1	0.2
8Forestry	4	0.1	4	0.1	0	0
9Fishing, Hunting and Trapping	3	0	2	0	1	0.2
10Metal Mining	622	8.2	580	8.2	42	9.1
12Coal Mining	43	0.6	39	0.5	4	0.9
13Oil and Gas Extraction	623	8.2	602	8.5	21	4.6
14Mining and Quarrying of Nonmetallic Minerals, Except Fuels	54	0.7	49	0.7	5	1.1
15Construction - General Contractors & Operative Builders	81	1.1	74	1	7	1.5
16Heavy Construction, Except Building Construction, Contractor	28	0.4	24	0.3	4	0.9
17Construction - Special Trade Contractors	32	0.4	32	0.5	0	0
20Food and Kindred Products	195	2.6	174	2.5	21	4.6
21Tobacco Products	4	0.1	4	0.1	0	0
22Textile Mill Products	34	0.5	26	0.4	8	1.7
23Apparel, Finished Products from Fabrics & Similar Materials	48	0.6	45	0.6	3	0.7
24Lumber and Wood Products, Except Furniture	33	0.4	32	0.5	1	0.2
25Furniture and Fixtures	21	0.3	19	0.3	2	0.4
26Paper and Allied Products	62	0.8	57	0.8	5	1.1
27Printing, Publishing and Allied Industries	84	1.1	78	1.1	6	1.3
28Chemicals and Allied Products	537	7.1	511	7.2	26	5.6
29Petroleum Refining and Related Industries	25	0.3	25	0.4	0	0
30Rubber and Miscellaneous Plastic Products	60	0.8	58	0.8	2	0.4
31Leather and Leather Products	13	0.2	11	0.2	2	0.4
32Stone, Clay, Glass, and Concrete Products	73	1	63	0.9	10	2.2
33Primary Metal Industries	110	1.5	101	1.4	9	2
34Fabricated Metal Products	71	0.9	68	1	3	0.7
35Industrial and Commercial Machinery and Computer Equipment	379	5	354	5	25	5.4
36Electronic & Other Electrical Equipment & Components	544	7.2	527	7.4	17	3.7
37Transportation Equipment	123	1.6	115	1.6	8	1.7
38Measuring, Photographic, Medical, & Optical Goods, & Clocks	352	4.7	342	4.8	10	2.2
39Miscellaneous Manufacturing Industries	43	0.6	41	0.6	2	0.4
40Railroad Transportation	11	0.1	11	0.2	0	0
41Local & Suburban Transit & Interurban Highway Transportation	7	0.1	7	0.1	0	0
42Motor Freight Transportation	40	0.5	40	0.6	0	0
44Water Transportation	48	0.6	42	0.6	6	1.3
45Transportation by Air	41	0.5	35	0.5	6	1.3
46Pipelines, Except Natural Gas	4	0.1	4	0.1	0	0
47Transportation Services	31	0.4	30	0.4	1	0.2
48Communications	341	4.5	310	4.4	31	6.7
49Electric, Gas and Sanitary Services	250	3.3	235	3.3	15	3.3
50Wholesale Trade - Durable Goods	163	2.2	149	2.1	14	3
51Wholesale Trade - Nondurable Goods	100	1.3	89	1.3	11	2.4
52Building Materials, Hardware, Garden Supplies & Mobile Homes	8	0.1	7	0.1	1	0.2
53General Merchandise Stores	43	0.6	36	0.5	7	1.5
54Food Stores	76	1	71	1	5	1.1
55Automotive Dealers and Gasoline Service Stations	25	0.3	21	0.3	4	0.9
56Apparel and Accessory Stores	35	0.5	32	0.5	3	0.7
57Home Furniture, Furnishings and Equipment Stores	38	0.5	36	0.5	2	0.4
58Eating and Drinking Places	82	1.1	72	1	10	2.2
59Miscellaneous Retail	111	1.5	99	1.4	12	2.6
70Hotels, Rooming Houses, Camps, and Other Lodging Places	53	0.7	48	0.7	5	1.1
72Personal Services	13	0.2	12	0.2	1	0.2

73Business Services	1189	15.7	1145	16.1	44	9.5
75Automotive Repair, Services and Parking	10	0.1	7	0.1	3	0.7
76Miscellaneous Repair Services	1	0	1	0	0	0
78Motion Pictures	71	0.9	63	0.9	8	1.7
79Amusement and Recreation Services	57	0.8	49	0.7	8	1.7
80Health Services	152	2	147	2.1	5	1.1
82Educational Services	17	0.2	15	0.2	2	0.4
83Social Services	9	0.1	8	0.1	1	0.2
84Museums, Art Galleries and Botanical and Zoological Gardens	1	0	1	0	0	0
87Engineering, Accounting, Research, and Management Services	183	2.4	176	2.5	7	1.5
89Services, Not Elsewhere Classified	1	0	1	0	0	0
95Administration of Environmental Quality and Housing Programs	0	0	0	0	0	0
96Administration of Economic Programs	2	0	2	0	0	0
Total	**7,552**	**100**	**7,091**	**100**	**461**	**100**

Appendix C: Two-Stage Acquisitions and Deal Premiums, OLS

This table reports results for an OLS model with the majority stake premium (Column 1) or the weighted deal premium (Columns 2 and 3) as dependent variables for a global sample of one- and two-stage deals. The main independent variable is an indicator for two-stage acquisitions. The control variables include deal (indicators for diversifying, cross-border, stock-financed, tender offer, or hostile deals) and firm (measures of a the firms' relative size, indicators for high-tech targets and acquirers, target and acquirer ROA and leverage, acquirer market cap., indicators for merger waves in the target's industry, the target's MTB ratio, and above-median target industry volatility) characteristics, along with acquirer and target industry, target country, and year fixed effects. Column 3 includes acquirer firm fixed effects. Standard errors are clustered at the industry-year level. ***, **, and * indicate significance at the 1%, 5%, and 10% significance level, respectively.

Dep. Var.:	(1) Maj. Acq. Premium	(2) Weighted Premium	(3) Weighted Premium
Two-Stage Acquisition	-0.055***	-0.077***	-0.071*
	(0.017)	(0.025)	(0.044)
Acquirer Market Cap. (ln)	0.009***	0.007***	-0.014
	(0.002)	(0.002)	(0.012)
Diversifying Deal	-0.017*	-0.027***	-0.008
	(0.009)	(0.010)	(0.020)
Cross-Border	0.015	0.016	-0.007
	(0.010)	(0.011)	(0.026)
Stock-Financed Deal	0.022*	0.028**	0.021
	(0.012)	(0.014)	(0.019)
Relative Size	-0.004***	-0.004***	-0.003
	(0.001)	(0.001)	(0.004)
High-Tech Target	0.015	0.018	0.005
	(0.013)	(0.016)	(0.030)
Target ROA	0.007***	0.007***	-0.011
	(0.002)	(0.002)	(0.011)
Acquirer ROA	0.155***	0.183***	-0.045
	(0.030)	(0.040)	(0.109)
Target Leverage	0.001	0.001	0.004
	(0.002)	(0.002)	(0.003)
Acquirer Leverage	-0.066***	-0.068***	
	(0.020)	(0.025)	
M&A Wave in Target Industry	-0.011	-0.009	-0.032
	(0.012)	(0.014)	(0.024)
Target MTB	0.000	0.001	0.002
	(0.002)	(0.002)	(0.003)
Target Industry Volatility > Median	0.042***	0.051***	-0.011
	(0.011)	(0.013)	(0.022)
Tender Offer	0.145***	0.151***	0.124***
	(0.010)	(0.012)	(0.019)
Hostile Deal	0.027	0.033	-0.016
	(0.019)	(0.023)	(0.044)
High-Tech Acquirer	0.009	0.013	
	(0.014)	(0.017)	
Constant	0.300	0.184	0.938**
	(0.246)	(0.297)	(0.447)
Observations	7,905	6,510	4,126
R-squared	0.174	0.162	0.159
Year FE	Yes	Yes	Yes
Acquirer Industry FE	Yes	Yes	No
Target Industry FE	Yes	Yes	Yes
Target Country FE	Yes	Yes	Yes
Acquirer Firm FE	No	No	Yes

Appendix D: Two-Stage Acquisitions and Deal Premiums, Financial Constraints Proxies

This table shows first-step (Columns 1, 3, and 5) and second-step (Columns 2, 4, and 6) estimations for a treatment effects model, with the weighted premium as the main dependent variable in a sample of global deals. In the first step, the probability of being targeted in a two-stage versus a one-stage deal is estimated based on a set of deal and firm characteristics, along with acquirer and target industry, target country, and year fixed effects, and an indicator for acquirers with leverage ratios (Column 1) or a HP index as in Hadlock and Pierce (2010) (Column 3) in the top quartile, or the FC index (Column 5). The inverse Mills ratio is included in the second step to adjust for selection bias. The independent variable in the second step is an indicator for two-stage deals. The control variables are the same set of deal and firm characteristics and fixed effects as in the first step, with the addition of target country controls, and excluding the financial constraints indicators. Two-step consistent standard errors are reported in brackets. ***, **, and * indicate significance at the 1%, 5%, and 10% significance level, respectively.

Dep. Var.:	(1) P(Two-Stage Acquisition)	(2) Weighted Premium	(3) P(Two-Stage Acquisition)	(4) Weighted Premium	(5) P(Two-Stage Acquisition)	(6) Weighted Premium
Two-Stage Acquisition		-0.236***		-0.250***		-0.243***
		(0.059)		(0.058)		(0.059)
Acquirer Leverage Top Quart.	0.230*					
	(0.141)					
Acquirer HP Index Top Quart.			0.438***			
			(0.161)			
Acquirer FC Index					0.824*	
					(0.425)	
Acquirer Market Cap. (ln)	-0.019	0.007***	-0.015	0.007***	-0.021	0.007***
	(0.021)	(0.002)	(0.021)	(0.002)	(0.021)	(0.002)
Diversifying Deal	0.167**	-0.025**	0.159**	-0.025**	0.161**	-0.025**
	(0.081)	(0.010)	(0.081)	(0.010)	(0.081)	(0.010)
Cross-Border	0.021	0.017	0.022	0.017	0.016	0.017
	(0.092)	(0.011)	(0.092)	(0.011)	(0.092)	(0.011)
Stock-Financed Deal	-0.416***	0.023**	-0.424***	0.023**	-0.417***	0.023**
	(0.086)	(0.010)	(0.087)	(0.010)	(0.086)	(0.010)
Relative Size	-0.032	-0.004***	-0.040	-0.004***	-0.031	-0.004***
	(0.038)	(0.001)	(0.044)	(0.001)	(0.037)	(0.001)
High-Tech Target	-0.083	0.017	-0.085	0.017	-0.081	0.017
	(0.115)	(0.014)	(0.115)	(0.014)	(0.115)	(0.014)
Target ROA	0.044	0.007***	0.049	0.007***	0.048	0.007***
	(0.050)	(0.002)	(0.049)	(0.002)	(0.049)	(0.002)
Acquirer ROA	0.407	0.196***	0.520*	0.196***	0.441	0.196***
	(0.311)	(0.024)	(0.311)	(0.024)	(0.306)	(0.024)
Target Leverage	-0.010	0.002	-0.009	0.002	-0.009	0.002
	(0.016)	(0.002)	(0.016)	(0.002)	(0.016)	(0.002)
Acquirer Leverage	-0.182	-0.064**	0.263	-0.064**	0.172	-0.064**
	(0.336)	(0.026)	(0.213)	(0.026)	(0.216)	(0.026)
M&A Wave in Target Industry	0.645***	-0.006	0.632***	-0.006	0.639***	-0.006
	(0.106)	(0.014)	(0.106)	(0.014)	(0.106)	(0.014)
Target MTB	0.066***	0.003	0.065***	0.003	0.066***	0.003
	(0.012)	(0.002)	(0.012)	(0.002)	(0.012)	(0.002)
Target Industry Volatility > Median	-0.103	0.051***	-0.114	0.050***	-0.103	0.050***
	(0.100)	(0.012)	(0.100)	(0.012)	(0.100)	(0.012)
Tender Offer	0.084	0.149***	0.087	0.149***	0.089	0.149***
	(0.094)	(0.012)	(0.094)	(0.012)	(0.094)	(0.012)
Hostile Deal	-0.231	0.026	-0.241	0.026	-0.233	0.026
	(0.271)	(0.028)	(0.270)	(0.028)	(0.269)	(0.028)
High-Tech Acquirer	-0.003	0.011	-0.010	0.011	-0.010	0.011
	(0.115)	(0.015)	(0.116)	(0.015)	(0.115)	(0.015)
Target Country Rule of Law		0.026***		0.026***		0.026***
		(0.006)		(0.006)		(0.006)
Target Country Acc. Standards > Med		0.016		0.016		0.016
		(0.013)		(0.013)		(0.013)
Inverse Mills Ratio	0.079**		0.087***		0.083***	
	(0.031)		(0.031)		(0.031)	
Observations	6,239	6,239	6,239	6,239	6,239	6,239
Pseudo R-squared		0.299		0.302		0.300
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Acq. & Target Ind. FE	Yes	Yes	Yes	Yes	No	Yes
Target Country FE	Yes	No	Yes	No	Yes	No

Appendix E: Deal Premiums and Acq. Financial Constraints, Exclusion Restriction

This table reports OLS estimations for a sample of majority acquisitions, where the weighted deal premium is the dependent variable, for a sample of global one- and two-stage deals. The main independent variables are an indicator for whether the acquirer has above- or below-median financial constraints (HP index) at the minority or majority stake acquisition, and an indicator for non-constrained (below-median HP index) targets. Control variables include deal and firm characteristics, along with acquirer and target industry, target country, and year fixed effects. Accounting variables are measured the year before the majority stake announcement. Standard errors are clustered at the industry-year level. ***, **, and * indicate significance at the 1%, 5%, and 10% significance level, respectively.

Dep. Var.:Weighted Premium	(1)	(2)
Non-Constrained Target	0.043**	
	(0.018)	
Acquirer HP Index > Median	-0.023**	-0.039***
	(0.010)	(0.012)
Non-Constrained Target x [Acquirer HP Index > Median]	-0.011	
	(0.025)	
Serial Acquirer		0.023*
		(0.012)
Serial Acquirer x [Acquirer HP Index > Median]		-0.002
		(0.011)
Diversifying Deal	-0.030***	-0.024***
	(0.007)	(0.007)
Acquirer Market Cap. (ln)	0.006***	0.006***
	(0.001)	(0.001)
Cross-Border	0.013*	0.011
	(0.007)	(0.008)
Stock-Financed Deal	0.032	0.031
	(0.022)	(0.022)
Relative Size	-0.004**	-0.004**
	(0.002)	(0.002)
High-Tech Target	0.026	0.009
	(0.023)	(0.020)
Target ROA	0.006***	0.007***
	(0.000)	(0.000)
Acquirer ROA	0.176***	0.183***
	(0.020)	(0.023)
Target Leverage	0.001	0.001
	(0.002)	(0.002)
Acquirer Leverage	-0.069**	-0.060*
	(0.030)	(0.032)
M&A Wave in Target Industry	-0.002	-0.012
	(0.017)	(0.013)
Target MTB	0.001	0.001
	(0.003)	(0.003)
Target Industry Volatility > Median	0.047*	0.050**
	(0.025)	(0.022)
Tender Offer	0.147***	0.149***
	(0.012)	(0.011)
Hostile Deal	0.023	0.033*
	(0.020)	(0.020)
High-Tech Acquirer	0.017	0.009
	(0.011)	(0.012)
Constant	0.139**	0.121***
	(0.068)	(0.025)
Observations	6,510	6,510
R-squared	0.172	0.161
Year, Acquirer, and Target Industry FE	Yes	Yes
Target Country FE	Yes	Yes

Appendix F: Two-Stage Acquisitions and Minority Stake Premiums

This table reports OLS estimations for a sample of global minority acquisitions, where the minority stake premium is the dependent variable. The main independent variable is an indicator for two-stage acquisitions, indicating that the minority stake was followed by a majority stake bid. Column 2 interacts the two-stage indicator with an indicator for above-median target industry volatility. The control variables include deal (indicators for diversifying, cross-border, and stock-financed deals) and firm (measures of a the firms' relative size, indicators for high-tech targets and acquirers, target and acquirer ROA and leverage, acquirer market cap., indicators for merger waves in the target's industry, the target's MTB ratio, and above-median target industry volatility indicator) characteristics, along with acquirer and target industry, target country, and year fixed effects. Accounting variables are measured the year before the minority stake announcement. Standard errors are clustered at the industry-year level. ***, **, and * indicate significance at the 1%, 5%, and 10% significance level, respectively.

Dep. Var.:Minority Stake Premium	(1)	(2)
Two-Stage Acquisition	0.067***	0.041*
	(0.021)	(0.024)
Target Industry Volatility > Median	0.001	-0.009
	(0.021)	(0.022)
Two-Stage Acquisition x [Target Industry Volatility > Median]		0.086*
		(0.045)
Diversifying Deal	-0.033**	-0.033**
	(0.014)	(0.014)
Cross-Border	0.009	0.009
	(0.017)	(0.017)
Stock-Financed Deal	0.085	0.079
	(0.071)	(0.070)
Relative Size	-0.051***	-0.050***
	(0.015)	(0.015)
High-Tech Target	-0.026	-0.025
	(0.020)	(0.020)
Target ROA	0.047**	0.048**
	(0.022)	(0.022)
Acquirer ROA	0.041	0.042
	(0.050)	(0.050)
Target Leverage	-0.000	-0.000
	(0.002)	(0.002)
Acquirer Leverage	0.046	0.045
	(0.038)	(0.037)
M&A Wave in Target Industry	0.010	0.010
	(0.019)	(0.019)
Target MTB	0.001	0.001
	(0.001)	(0.001)
Acquirer Market Cap. (ln)	-0.003	-0.002
	(0.003)	(0.003)
High-Tech Acquirer	-0.014	-0.014
	(0.021)	(0.021)
Constant	-0.002***	-0.003***
	(0.202)	(0.201)
Observations	3,887	3,887
R-squared	0.096	0.097
Year FE	Yes	Yes
Acquirer and Target Industry FE	Yes	Yes
Target Country FE	Yes	Yes

Appendix G: Effect of Positive and Negative events on Likelihood of Expanding a Minority Stake

This table reports the hazard ratios for a Cox proportional hazard model on a global sample of minority stake acquisitions, investigating the effect of a large (> 2 st.dev.) increase or decrease in target ROA, in addition to a set of control variables at the deal- (indicators for diversifying, cross-border, stock-financed, tender offer, or hostile deals and the % of shares acquired) and firm- (measures of a the firms' relative size, indicators for high-tech targets, target and acquirer ROA and leverage, acquirer market cap., the target's MTB ratio, above-median target industry volatility, and an indicator for merger waves in the target's industry) level, as well as acquirer and target country, target country, and year fixed effects. Columns 1 and 2 (3 and 4) consider a sample of minority acquisitions that were expanded (sold) or retained during the sample period, Columns 5 and 6 consider only minority stakes that were expanded before the end of the sample period. Standard errors are clustered at the industry-year level. ***, **, and * indicate significance at the 1%, 5%, and 10% significance level, respectively.

Dep. Var.: Hazard Ratio	(1)	(2)	(3)	(4)	(5)	(6)
	P(Expand)		P(Sale)		P(Expand)	
Large Decrease in ROA	0.672**		0.442***		0.604***	
	(0.117)		(0.0411)		(0.117)	
Large Increase in ROA		0.787		0.794**		0.834
		(0.140)		(0.0772)		(0.162)
Observations	39,287	39,287	40,824	40,824	3,615	3,615
Deal and Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Acquirer & Target Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Target Country FE	Yes	Yes	Yes	Yes	Yes	Yes

Appendix H: Premium and Price Change When Selling

Panel A reports OLS estimations for the premium and relative price change when selling a minority equity stake for a global sample of minority stake acquisitions. Column 1 considers the premium received, Column 2 considers the ratio of the price per share received when selling relative to the price per share paid when buying, and Column 3 considers the price ratio adjusted for the acquirer's IRR. The independent variables are indicators for whether the stake was sold to a third-party majority acquirer or sold back to the target firm (where the base case is sold to third-party minority acquirer), the time passed between the acquisition and the sale, and accounting variables for the seller and target firms (return on assets, leverage). All specifications include acquirer and target industry and year fixed effects. Time-variant variables are measured the year before the sale. Robust standard errors are reported in brackets, standard errors are clustered at the target industry level. ***, **, and * indicate significance at the 1%, 5%, and 10% significance level, respectively. Panel B graphically shows the evolution of the adjusted relative price change, depending on the number of years the acquirer held the minority stake.

Panel A: OLS Estimations

Dep. Var.:	(1) Premium	(2) Price Sold/Price Acquired	(3) Price Sold/Price Acquired (Adj.)
Sold to Majority Acquirer	0.187***	0.613**	0.604*
	(0.040)	(0.301)	(0.331)
Sold to Target	-0.006	0.029	-0.125
	(0.061)	(0.208)	(0.216)
Nr. Of Years Since Acquisition	-0.008	-0.031	-0.059*
	(0.006)	(0.042)	(0.034)
Target Leverage	-0.009	-0.010	-0.246
	(0.093)	(0.627)	(0.209)
Target ROA	0.124	0.752	0.552**
	(0.127)	(0.818)	(0.214)
Acquirer ROA	0.240*	0.031	-0.140
	(0.138)	(0.888)	(0.262)
Acquirer Leverage	0.204*	-0.624	-0.086
	(0.115)	(0.545)	(0.248)
Constant	0.031	-0.672	-1.425
	(0.145)	(1.169)	(1.871)
Observations	271	255	255
Adj. R-Squared	0.19	0.04	0.11
Year FE	Yes	Yes	Yes
Acquirer and Target Industry FE	Yes	Yes	Yes

Panel B: Price Change for Number of Years Held

Appendix I: Variable Definitions

Firm-Level Variables	
Target/Acquirer Leverage	Book value of the firm's total debt, divided by book value of total assets. *Source: Worldscope and Compustat.*
High-Tech Target/Acquirer	Dummy equal to one if SDC reports the firm as being in a high-tech industry. *Source: SDC.*
Target Industry Volatility > Median	Dummy equal to one if the volatility of stock returns in the target's industry is above the sample median in a particular year. *Source: Datastream and CRSP.*
Target MTB	The target's market-to-book ratio. *Source: Worldscope and Compustat.*
Target/Acquirer ROA	The firm's EBITDA, divided by total assets. *Source: Worldscope and Compustat.*
Target/Acquirer Market Cap.	The firm's market capitalization in millions of USD. *Source: Worldscope and Compustat.*
Target Industry Volatility	Standard deviation of the target industry's stock returns in the past fiscal year. *Source: Datastream and CRSP.*
Target and Acquirer Country Share Border	Dummy equal to one if the acquirer's and target's countries share a common border or are located in the same country, and zero otherwise. *Source: CEPII.*
Target/Acquirer HP Index	Index based on the firm's size and age, calculated as in Hadlock and Pierce (2010) where the HP Index = (-0.737*Size) + (0.043*Size^2) - (0.040*Age) with size is the log of total assets, and age is the number of years the firm has been listed in Compustat or Datastream. A higher value of the HP Index indicates stronger financial constraints. *Source: Datastream, Compustat, and CRSP.*
Acquirer FC Index	Financial Constraints Index ranging from 0 to 3, with adds 1 if the firm stopped paying a dividend, if it is in the top leverage quartile, or if its HP Index is in the top quartile. A higher value of the FC index indicates stronger financial constraints.
Acquirer 3-Year Pre-Merger Industry-Adjusted ROA	The acquirer's average return on assets over the 3 years preceding the majority acquisition announcement, 2-digit SIC industry-adjusted.
Combined Firm 3-Year Post-Merger ROA	The combined firm's average return on assets over the 3 years following the majority acquisition announcement, 2-digit SIC industry-adjusted.
Deal-Level Variables	
Two-stage Acquisition	Dummy equal to one if, prior to making a majority takeover bid, the acquirer acquired a minority stake in the target for which the deal premium is non-missing. *Source: SDC.*

Relative Size	Ratio of the target's book value of total assets over the acquirer's book value of total assets. *Source: Worldscope and Compustat*.
Cross-Border	Dummy equal to one if the target and the acquirer are located in different countries*. Source: SDC.*
Hostile Deal	Dummy equal to one if the deal's attitude is labelled as "Hostile" in SDC, and zero otherwise. *Source: SDC.*
Stock-Financed Deal	Dummy equal to one if the deal is fully financed using stock, and zero otherwise. *Source: SDC.*
Tender Offer	Dummy equal to one if the deal is labelled as a tender offer in SDC, and zero otherwise. *Source: SDC.*
Diversifying Deal	Dummy equal to one if the target and acquirer are in different 2-digit SIC industries. *Source: SDC.*
M&A Wave in Target Ind.	Dummy equal to one if M&A activity in the target's industry has been growing for at least three consecutive years, and at least 10 deals have been completed in the past year. *Source: SDC.*
% of Shares Owned Before	Percentage of shares owned by the acquirer after the last minority stake acquisition prior to making a majority takeover bid. *Source: SDC.*
Nr. of Days between Min and Maj. Acq.	Number of days between the announcement of the acquirer's last minority acquisition and the majority stake acquisition. *Source: SDC.*
Ln(Potential Bidders) > Median	Dummy equal to one if the log of the total number of potential bidders in the acquirer's industry is greater than the sample median. The potential number of bidders in industry *i* at time *t* is calculated as the sum of the products of the probability that a firm in industry *i* is acquired by a firm in industry *j* with the probability that an acquirer belongs to industry *j* times the number of public companies in industry *j* one year before the takeover offer is made. *Source: Compustat, Worldscope, and SDC.*
Anti-Trust Dummy	Dummy equal to one if a deal exceeds the EU merger control regulations, defined as deals where the parties have a combined market share of > 35%.
Completed Deal	Dummy equal to one if a deal is completed, and zero if the offer was withdrawn. *Source: SDC.*
Time to Completion	Log of the number of days between the announcement of the majority stake acquisition and the completion of the deal. *Source: SDC.*
Divested	Dummy equal to one if a target was divested by the acquirer at some point after the initial majority acquisition was completed. *Source. SDC.*

Acquirer on Target Board	Dummy equal to one if the acquirer is represented on the target's board before the majority stake offer is made. *Source: BoardEx.*
Non-Constrained Target	Dummy equal to one if the target's HP index (Hadlock and Pierce, 2010) is below the sample median at the majority stake acquisition. *Source: Datastream, Compustat, and CRSP.*
Serial Acquirer	Dummy equal to one if the acquirer engages in more than 2 takeovers per year over the sample period.
Premiums and CARs	
Majority Acq. Premium	Merger premium defined as in Officer (2003). It is adjusted for outliers and various sources in SDC, calculated as the price offered by the bidder, divided by the target's market value of equity 43 days prior to the bid announcement. The premium is based on component data if it results in a value between 0 and 2, and if not it is based on initial price data if that results in a value between 0 and 2. If neither condition is met, the premium is left missing. *Source: SDC.*
Weighted Premium	Calculated as the premium offered in the minority and majority stake acquisitions, weighted by the fraction of shares acquired in each transaction. It equals the majority acquisition premium for one-stage acquirers. *Source: own calculations.*
Target/Acquirer CARs	Abnormal announcement returns in a three-day [-1,+1] window around the bid announcement, calculated using the market model based on the firm's local market returns.
Combined CARs	Calculated as a market-value-weighted average of the target's and acquirer's CARs, with market value measured the year before the announcement.
Price Sold/Price Acquired	Ratio of the price per share at which the acquirer bought a minority stake, relative to the price per share at which it sold the stake.
Price Sold/Price Acquired (Adj.)	Equivalent with Price Sold/Price Acquired, but where the Price Acquired is multiplied with a proxy for the acquirer's IRR for each year between the sale and the acquisition.
Post-UTSA	Dummy equal to one if a target's state has enacted the UTSA statutes in a prior year. *Source: Png (2015).*
Treated Target State	Dummy equal to one if a target's state has enacted the UTSA statutes during or before the sample period. *Source: Png (2015).*
Reduction ITR_{t-1}	Dummy equal to one if there has been a large import tariff cut in the year before the merger announcement. *Source: Schott (2010) and own calculations.*
Treated Target Industry	Dummy equal to one if a target's industry has been subject to large tariff cuts during the sample period. *Source: Schott (2010) and own calculations.*

Foreign Potential Bidder Competition	Log of the total number of potential foreign bidders, where the potential number of foreign bidders in industry *i* at time *t* is calculated as the sum of the products of the probability that a firm in industry *i* is acquired by a foreign firm in industry *j* with the probability that a foreign acquirer belongs to industry *j* times the number of public foreign companies in industry *j* one year before the takeover offer is made. *Source: Compustat, Worldscope, and SDC.*